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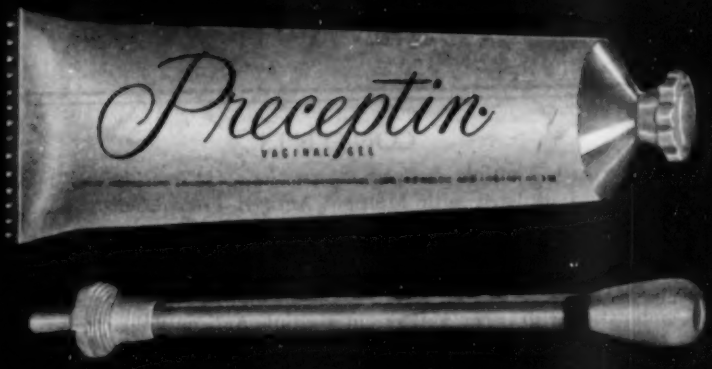

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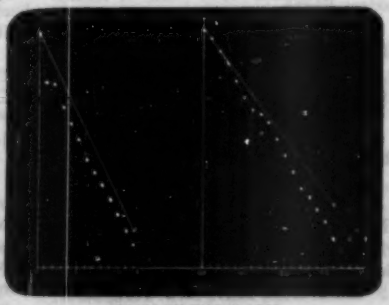

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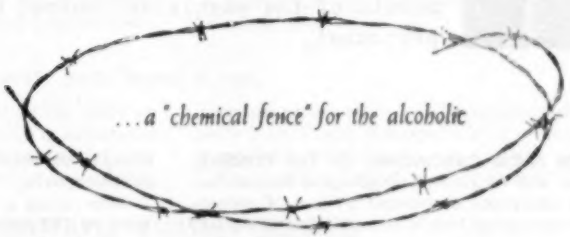

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FETOR FROM CARCINOMA OF THE TONSILS, ozena, and varied otolaryngological diseases has been effectively deodorized by use of chlorophyll-derivatives both in this country and abroad.

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WRITE FOR "CHLOROPHYLL 1953" by Dr. Walter H. Eddy

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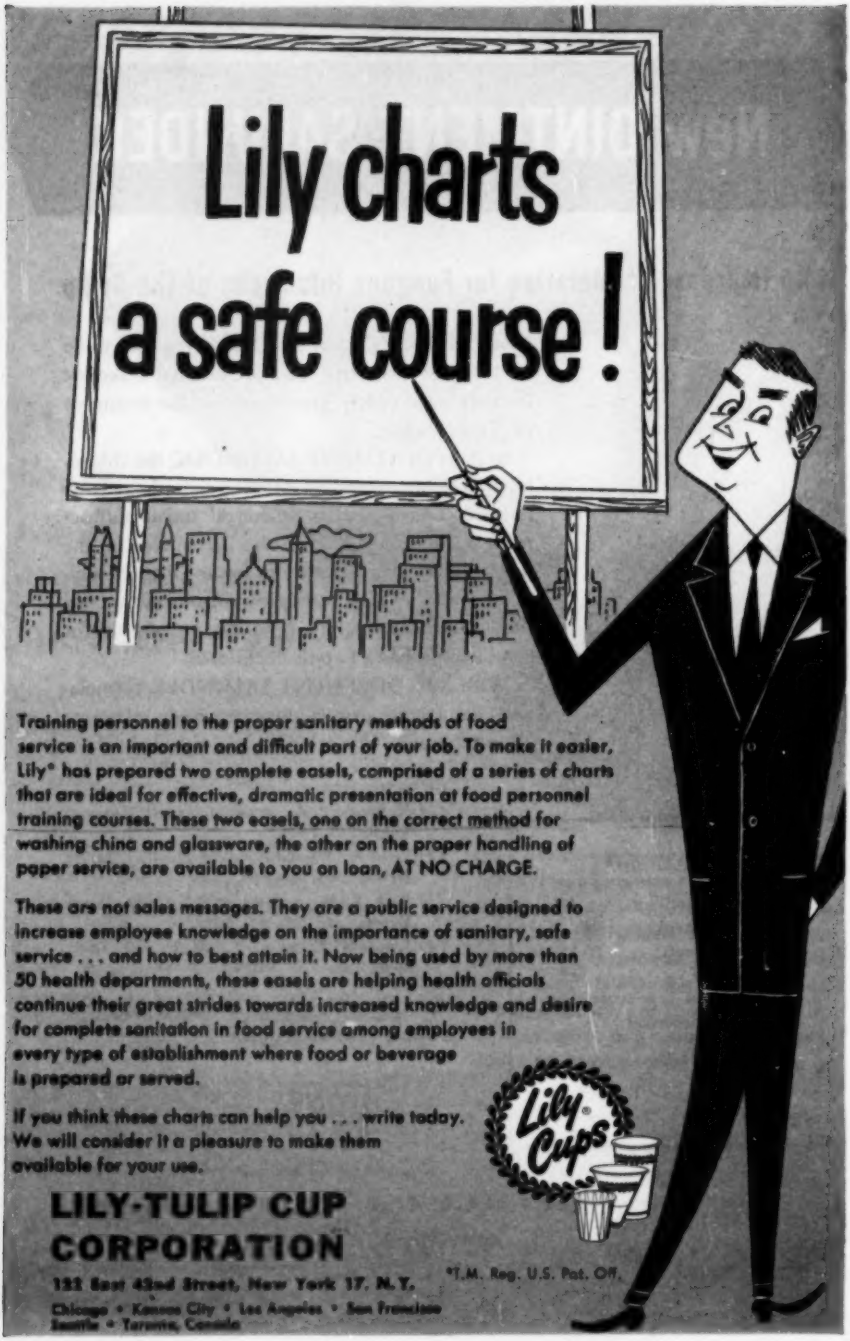
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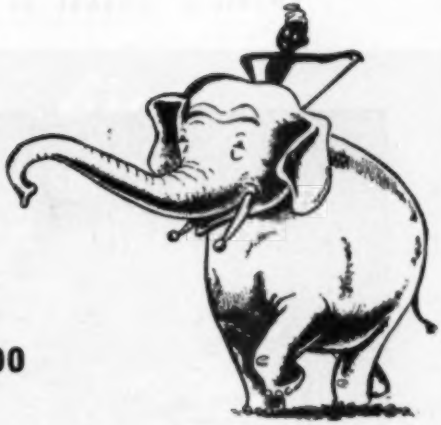

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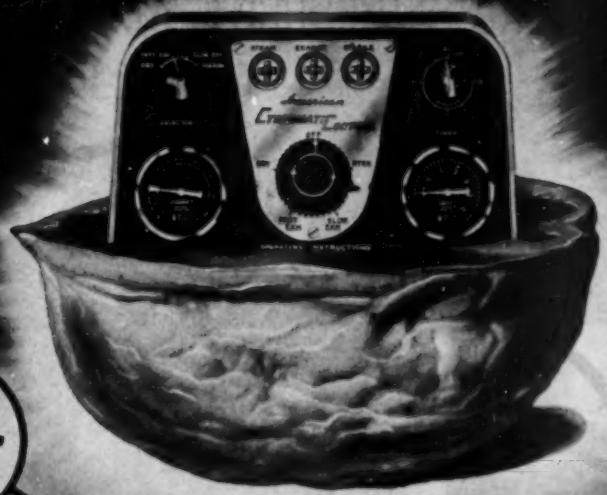

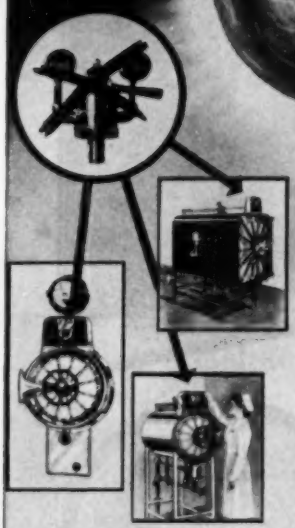

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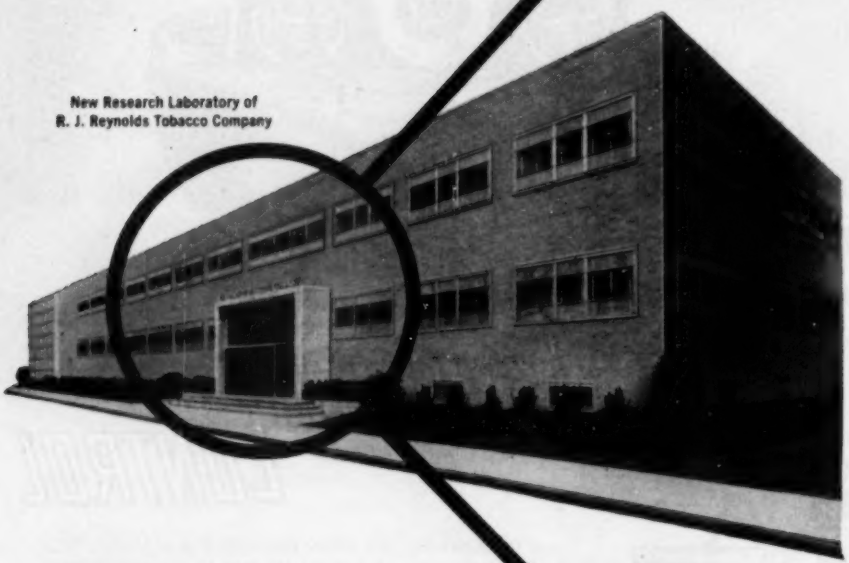

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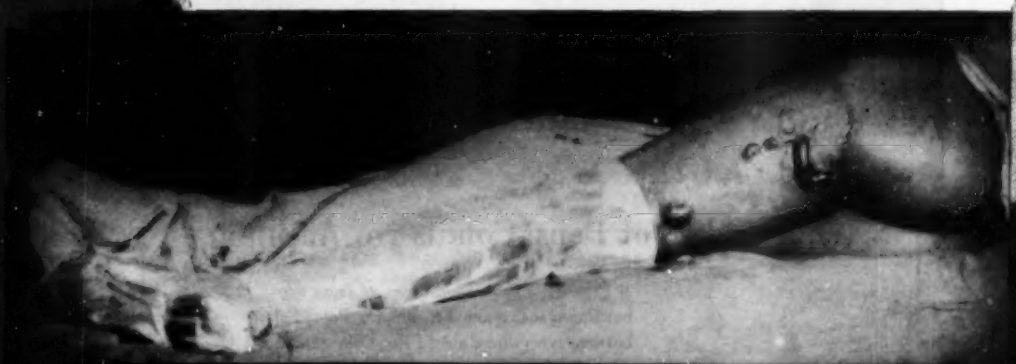

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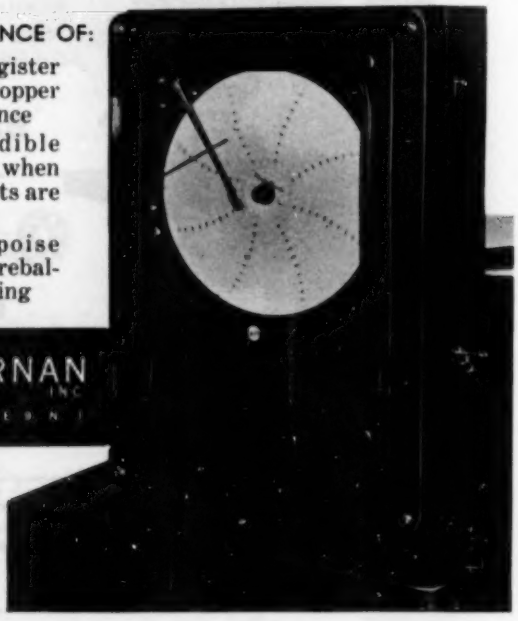

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American Journal of Public Health
and THE NATION'S HEALTH

Volume 43 July, 1953 Number 7

This paper is about the use of triple antigens as booster doses to maintain immunity against the preventable childhood diseases. Though the paper is limited to a report of scientific research, its clarity of statement permits us all to master its particular findings in the three "R's" of immunology: Response, Reactions, and (lasting) Results.

Reinoculation with Multiple Antigen Preparations of Free-Living Children Previously Inoculated with Multiple Antigen Preparations*

V. K. VOLK, M.D., DR.P.H., F.A.P.H.A., FRANKLIN H. TOP, M.D., D.P.H., F.A.P.H.A., AND WILLIAM E. BUNNEY, PH.D., F.A.P.H.A.

County Commissioner of Health, Saginaw, Mich.; Professor and Head, Department of Hygiene and Preventive Medicine, University of Iowa, College of Medicine, Iowa City, Iowa; and Vice-President, E. R. Squibb & Sons, Division of Mathieson Chemical Corporation, New York, N. Y.

INOCULATION with multiple antigen preparations has been extensively studied[1, 2] and found to be more effective than inoculation with one antigen at a time.[1] The purpose of this report is to extend our knowledge of multiple antigens by studying their usefulness in the reinoculation of free-living children with multiple antigen preparations. In the following report observations are made on reinoculation of 251 children who had been inoculated three years previously with similar preparations.[2] Of this group 142 had received four-antigen preparations containing diphtheria, pertussis, tetanus, and scarlet fever antigens, and 109 had received three-antigen preparations containing diphtheria, pertussis, and tetanus antigens.

The objectives of the study were to determine:

1. The number and type of reactions following reinjection with a multiple antigen preparation.
2. The immunity status of a group of children who previously had received multiple antigen preparations.

* This study was made possible by an annual grant by E. R. Squibb & Sons who also provided all the biologic preparations.

TABLE 1

Age Distribution of the Reinoculation Group

48 Per cent Males; 52 Per cent Females

Inoculation Age in Years		Total Group of 251 Children	
Primary	*Reinoculation*	*Booster Dose* 0.2 ml.	*Booster Dose* 0.5 ml.
2– 5	5– 8	9	11
6–10	9–13	117	104
11–15	14–18	4	6
Total		130	121

3. The rapidity with which children previously injected with multiple antigen preparations would respond to a single reinjection dose.

4. The minimal effective dosage.

ANTIGEN USED

The group of 251 previously inoculated children were reinjected with the following three-antigen preparation:

No. 12892 *Combined antigens*
Diphtheria toxoid, A.P.
Tetanus toxoid, A.P.
Pertussis vaccine, 30,000 millions per ml.

One hundred and thirty children received 0.2 ml. and 121 children received 0.5 ml. of the above preparation as a booster dose.

The age distribution of the reinoculated children is found in Table 1.

REACTIONS

Before undertaking wide-scale use, one would first want to have information regarding reactions to booster injections of multiple antigens. Although reinoculation might appear to be desirable, the occurrence of reactions or the type of response following subsequent injections could conceivably influence the desirability of introducing such a program. A booster dose of the multiple antigen preparation was given immediately following the drawing of blood for titration on every child, without waiting for the results of the titration.

The 235 children were observed for possible reactions for 11 consecutive days following the booster dose. All reactions were seen or evaluated by the same nurse who served in the original immunization study.[1, 2] As was expected, the reactions were more prevalent in the group receiving 0.5 ml. than in the group receiving 0.2 ml. (Figure 1.). Booster reactions were compared with the third injection reactions because the latter were more prevalent than those following first or second injections. It should be noted that the reactions lasted but a few days. None of the children in the group developed cysts at the site of injection. The results indicated that reinoculation with multiple antigen preparations was safe.

Local reactions following booster injection of 0.2 ml. were comparable to the reactions encountered following the third injection of similar multiple antigen preparations during primary inoculation.[3] There were fewer general reactions following the booster dose than had been noted in the groups receiving second and third primary injections of multiple antigen preparations.

PROCEDURE USED

Prior to inoculation it was highly desirable to determine the immune status of the previously inoculated children with reference to diphtheria and tetanus for which antitoxin titration levels were obtainable. Blood was drawn at the time of the booster injection, also two weeks, one month, two months, and six months later, for determination of diphtheria and tetanus antitoxin levels. The intervals, which are shorter than those used after primary inoculation, were chosen in order to demonstrate more clearly the antigenic response which re-

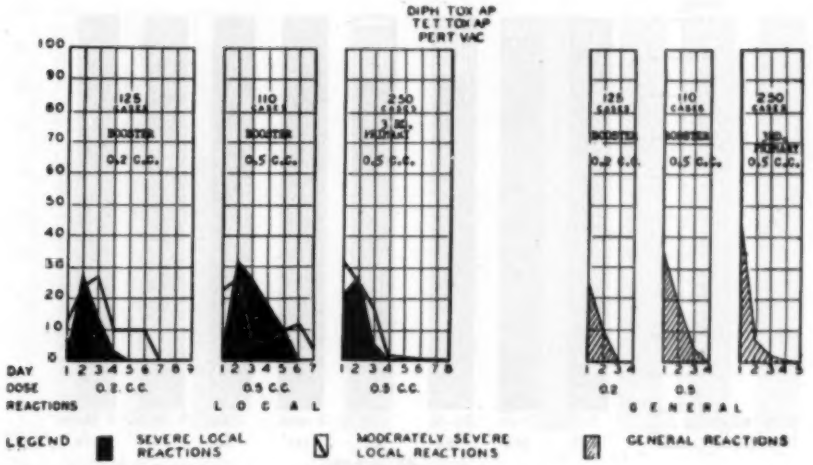

FIGURE 1—Reactions Following Intramuscular Injections of Children with Multiple Antigen Preparation No. 12892.

putedly appears earlier than after primary injection.[1-3] The method used in determining the antitoxin levels was reported in previous papers.[4, 5]

DETERMINATION OF DIPHTHERIA ANTITOXIN LEVELS AND RESULTS OF BOOSTER INJECTIONS IN CHILDREN WHO PREVIOUSLY RECEIVED THREE INJECTIONS OF A MULTIPLE ANTIGEN PREPARATION

Figure 2 shows the results of a prereinoculation testing of 201 children who had received three injections of either three or four-antigen preparations 36 months before. This group is represented by the fourth column in the chart. The first three columns show the titration levels of the same group at 5–8 months, 12–18 months, and at 24–30 months after the first injection of the multiple antigen preparation used at primary inoculation. A study of Figure 2 shows that a high level of protection was maintained—better than 80 per cent had more than 0.1 of a unit of diphtheria antitoxin throughout the period of observation. Following the first two tests the level was higher than 90 per cent, the second period titration levels being slightly higher than the first period. There was a moderate decrease in the antitoxin levels at the 24–30 months' and 36 months' test periods.

The group of 201 children who had received three injections of a multiple antigen preparation 36 months previously, was bled at the time booster injections were given, as has been shown in Figure 2. The diphtheria antitoxin level was well maintained and was comparable to the level at the end of 30 months following inoculation, and it is as follows:

At the time when 201 children received the booster injection—

Number	*Per cent*	
167 or	83	had more than 0.1 unit of diphtheria antitoxin
16 or	8	had more than 0.01
8 or	4	had 0.01
3 or	1.5	had less than 0.01
1 or	0.5	had more than 0.001
1 or	0.5	had 0.001
5 or	2.5	had less than 0.001

The entire group received either 0.2 ml. or 0.5 ml. as a booster injection.

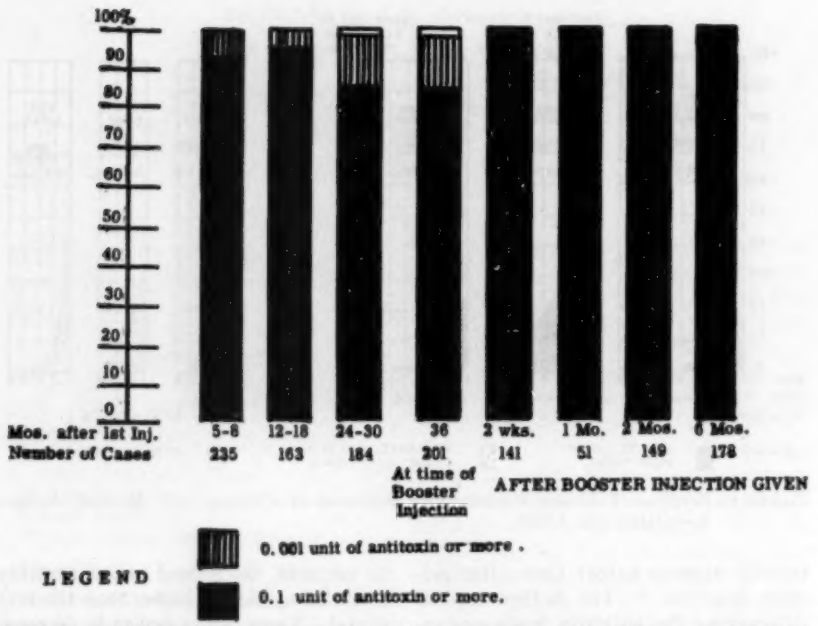

FIGURE 2—Diphtheria Antigenic Response Following 3 Primary Injections and Following Booster Injection (All Children Having Less than 0.001 Unit of Antitoxin at Time of First Injection).

Two weeks later this group was again titrated, and every child but one had a rapid and substantial rise in diphtheria antitoxin level, as can be seen from Figure 2. All children but one had more than one-tenth of a unit of diphtheria antitoxin at the end of two weeks. The one exception referred to which did not show an increase in the antitoxin level two weeks following the booster injection had the following titration record after three injections of multiple antigen preparations:

Pre-titer	Less than 0.001
6 months after first injection	0.1
1 year after first injection	0.1
3 years after first injection when booster injection was given	0.1
2 weeks after booster injection	0.01
2 months after booster injection	More than 1.0
6 months after booster injection	1.0

The diphtheria antitoxin level was well maintained at the end of one month, two months, and six months. In one other instance the diphtheria antitoxin level fell below one-hundredth of a unit six months after the booster injection. However, titration two weeks and two months later showed more than 1.0 unit.

Diphtheria antigenic response in children who previously received two injections of multiple antigen preparation

Figure 3 shows the results of titration in a group of 45 children who initially received two injections of a multiple antigen preparation. The proportion of children with an antitoxin titer level of 0.1 of a unit or more at the end of 5–8 months was 63 per cent; for the period 12–18 months it was 82 per cent; at 24–30 months it dropped to 64 per cent. By 36 months in the 23 children remain-

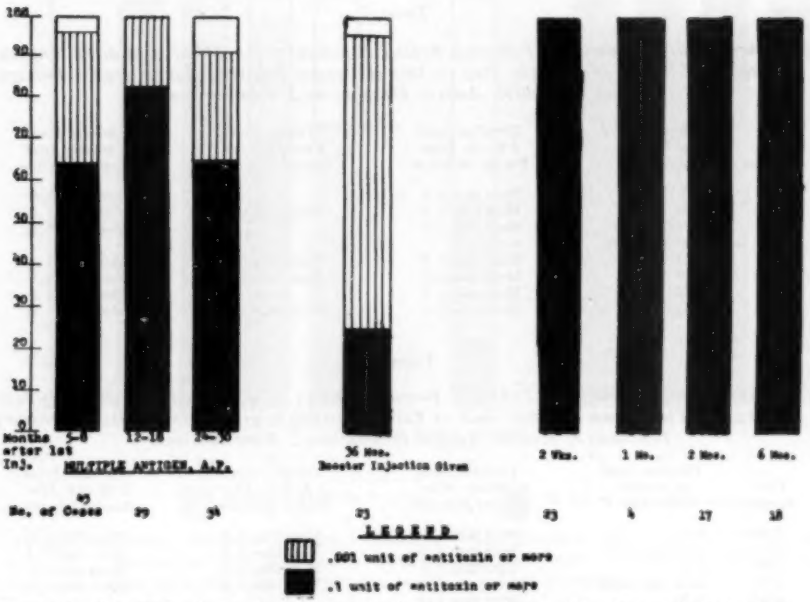

FIGURE 3—Diphtheria Antigenic Response Following 2 Primary Injections and Following a Booster Injection (All Children Having Less than 0.001 Unit of Antitoxin at First Injection).

ing of the original 45 inoculated the proportion had declined to 28 per cent. However, a detectable amount of diphtheria antitoxin was present in 95 per cent of the latter group. It is readily apparent that the levels are lower after two injections than after three injections of the same multiple antigen preparations.

When this group of children was bled again two weeks after the booster injection a remarkable antigenic response was demonstrated in the entire group. The same observation was noted one month and six months later. The entire group had more than 0.1 unit of diphtheria antitoxin (Figure 3).

Comment—In comparing the diphtheria antitoxin response in inoculated and noninoculated groups having less than 0.001 units of diphtheria antitoxin at the time of injection of a multiple antigen preparation,[4,5] it was observed that in a previously noninoculated group, one injection resulted in a response of more than 0.1 unit of antitoxin per ml. in only 5 per cent, while in previously inoculated groups the response for this level was 100 per cent.

0.2 ML. VS. 0.5 ML. DOSAGE OF A MULTIPLE ANTIGEN PREPARATION

Antigenic response to diphtheria following booster injection of a multiple antigen preparation in a dose of 0.2 ml. or 0.5 ml. is very effective and prompt. This is shown in Tables 2 and 3, which represent the groups that have been least responsive to primary inoculation. We found that a dose of 0.2 ml. is just as effective as 0.5 ml. in raising the antitoxin level to 0.1 unit or higher. On the basis of observations made we conclude that in diphtheria immunization it is advisable to give previously inoculated children one injection of a

TABLE 2

Diphtheria Antigenic Response Following Booster Injection of 0.5 ml. of a Multiple Antigen Preparation (This Group Had 0.01 Unit or Less at Booster Injection, Having Had 3 Primary Injections of Multiple Antigen Preparations 3 Years Previously)

Case Number	Titration Level at Booster Injection	Titration Level 2 Weeks After Booster Injection	Titration Level 2 Months After Booster Injection	Titration Level 6 Months After Booster Injection
2979	0.01	More than 1.0	....	More than 1.0
2855	0.01	More than 1.0	More than 1.0	More than 1.0
2945	Less than 0.001	More than 1.0	....	More than 0.1
3004	Less than 0.01	1.0	....	....
3137	0.01	More than 1.0	More than 1.0	More than 1.0
3158	0.01	More than 1.0	More than 1.0	More than 1.0
3577	0.001	More than 1.0	....	More than 1.0
3086	Less than 0.001	More than 1.0	More than 1.0	More than 1.0

TABLE 3

Diphtheria Antigenic Response Following Booster Injection of 0.2 ml. of a Multiple Antigen Preparation (This Group Had 0.01 Unit or Less at Booster Injection, Having Had 3 Primary Injections of Multiple Antigen Preparations 3 Years Previously)

Case Number	Titration Level at Booster Injection	Titration Level 2 Weeks After Booster Injection	Titration Level 2 Months After Booster Injection	Titration Level 6 Months After Booster Injection
3167	0.01	More than 1.0	More than 1.0	More than 1.0
3561	Less than 0.01	More than 1.0	More than 1.0	More than 1.0
3585	0.01	More than 1.0	More than 1.0	More than 1.0
3570	Less than 0.001	1.0	More than 1.0	More than 1.0
2963	0.01	More than 1.0	....	....
2990	0.01	1.0	....	1.0
3001	Less than 0.001	More than 1.0	....	....
2786	Less than 0.01	More than 1.0	More than 1.0	0.1
2877	More than 0.001	More than 1.0	More than 1.0	More than 1.0
3003	Less than 0.001	More than 1.0		

multiple antigen preparation as a booster dose at about three-year intervals or upon subsequent exposure to diphtheria.

DETERMINATION OF TETANUS ANTITOXIN LEVELS AND TETANUS ANTIGENIC RESPONSE IN CHILDREN PREVIOUSLY INOCULATED WITH THREE INJECTIONS OF A MULTIPLE ANTIGEN PREPARATION

Similar titrations were carried out for tetanus antitoxin for the same periods, but using 0.05 unit per ml. or greater, as the level above which individuals were considered to have adequate protection.

Figures 4 and 5 show tetanus antitoxin levels at stated intervals following three injections of multiple antigen preparations, and results here are similar to those found with diphtheria titrations, especially for the first two periods. However, tests at the third and fourth intervals indicate rapid reduction in tetanus antitoxin levels.

A group of 196 children were bled and received a booster dose of 0.2 ml. or 0.5 ml. of a multiple antigen preparation 36 months after receiving the primary series of inoculations with a similar preparation. As is shown in Figures 4 and 5, the tetanus antitoxin level at the time the booster injection was given was considerably lower than the level determined at 24–30 months after the primary inoculation. However, following the booster injection the tetanus antigenic response was very rapid, and at the end of two weeks all children had 0.5 ml. unit of antitoxin or more. At the end of six months 97 per cent of the children still had more than 0.05 unit of tetanus antitoxin (Figures 4 and 5).

Within the limits of titrations used, there was no difference in response

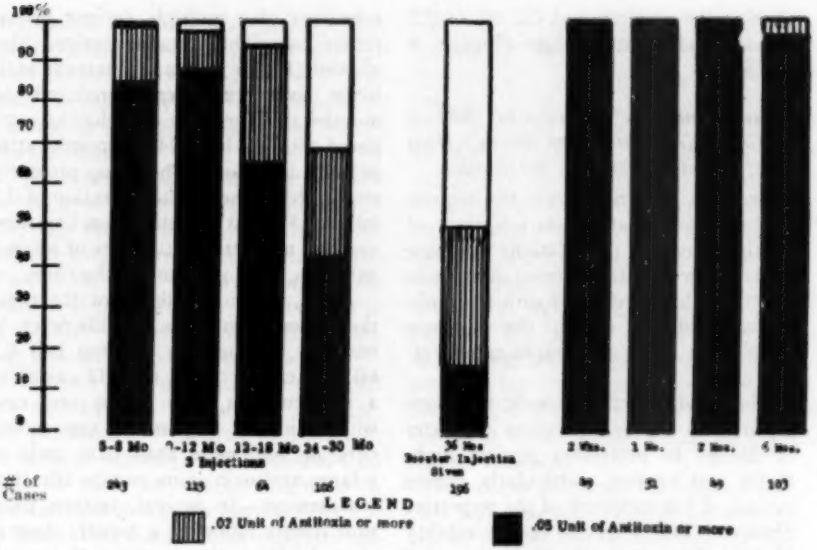

FIGURE 4—Tetanus Antigenic Response Following Three Primary Injections and Following Booster Injection of 0.5 ml. of Multiple Antigen Preparation (All Children Having Less than 0.02 Unit of Antitoxin at Time of First Injection).

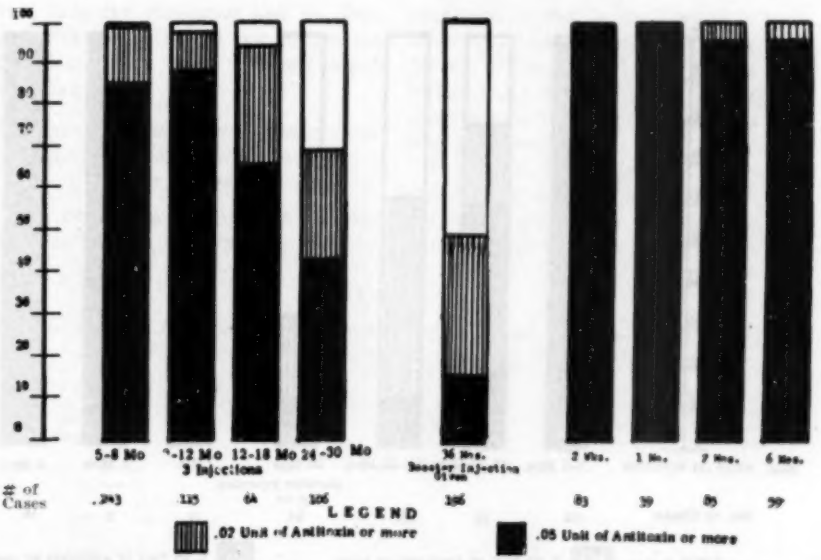

FIGURE 5—Tetanus Antigenic Response Following Three Primary Injections and Following Booster Injection of 0.2 ml. of Multiple Antigen Preparation (All Children Having Less than 0.02 Unit of Antitoxin at Time of First Injection).

whether the children had 0.2 ml. or 0.5 ml. as a reinoculation dose (Figures 4 and 5).

Tetanus antigenic response in children previously inoculated with two injections of a multiple antigen preparation

Again as with diphtheria the tetanus antitoxin results after two injections of multiple antigen preparations compare unfavorably with those found after three injections, but contrasted with the diphtheria antitoxin results the decrease occurs at a much more rapid rate (Figure 6).

The results of the periodic titrations confirm, in general, previous estimates of decline in protection against diphtheria and tetanus, particularly during periods of low incidence of the respective diseases. This points up the desirability of periodic resort to enhancement of protection by means of booster injections.

A group of 24 children who received injections of a multiple antigen preparation containing tetanus antigen also showed (Figure 6) that the tetanus antitoxin level was greatly reduced 36 months after primary injection as compared with the level 24–30 months after primary injection. The group promptly responded to the booster injection of 0.2 ml. or 0.5 ml. at all subsequent titrations and had more than 0.05 units of tetanus antitoxin in 95 per cent of the cases.

Again, within the limits of the titrations used, there was no difference in response whether the children had 0.2 ml. (13 cases) or 0.5 ml. (11 cases) as a reinoculation dose. The one case which did not respond at one month titration had more than 0.05 units of tetanus antitoxin at six months titration.

Comment—In general, tetanus titration results following a booster dose of a multiple antigen preparation were similar to diphtheria titration results. Children with a history of previous inoculation, and having less than 0.2 unit,

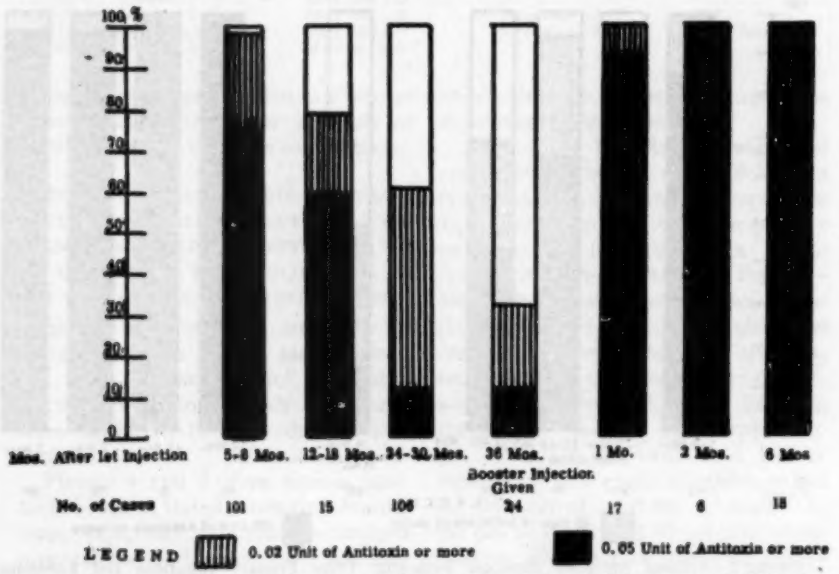

FIGURE 6—Tetanus Antigenic Response Following Two Primary Injections and Following Booster Injection of 0.2 ml. or 0.5 ml. of Multiple Antigen Preparation (All Children Having Less Than 0.02 Unit of Antitoxin at Time of First Injection).

responded far more satisfactorily than noninoculated groups. It was observed that booster doses of 0.2 ml. or 0.5 ml. were equally effective and prompt in raising the tetanus antitoxin level to 0.05 unit or more.

We conclude that reinoculation with a multiple antigen preparation, which includes the tetanus antigen, should be offered every three years during childhood. In cases of injury, where the danger of tetanus exists, an injection of a multiple antigen preparation containing tetanus antigen is recommended.

However, it is interesting to note that six months after the booster injection, the percentage of children with 0.1 unit or more of diphtheria antitoxin and 0.05 unit or more of tetanus antitoxin is greater than it was six months after the primary injections. This suggests the possibility that more than three years could elapse before a second booster dose need be given, and perhaps still longer between a second and third. We have only the suggestion and no data, but with the increased use of tetanus immunization it would be data worth obtaining.

Response to pertussis antigen after three primary injections with a multiple antigen preparation

For evaluation of response to pertussis antigen an agglutination test was used, as in the original study. Unfortunately, the usefulness of the agglutination test is limited, although it is generally agreed that positive tests indicate antigenic stimulation, even though there is no proof that the positive tests indicate protection against pertussis.

It will be noted in Table 4 and in Figure 7 that conversion of the agglutination test from negative to positive was observed in 55 per cent of the group of children eight months after the three primary injections. At the end of 18 months the proportion increased to 68 per cent, but at the end of 36 months it decreased to 55 per cent, at which time the entire group (196 children) received booster injections.

The entire group of 196 children were bled and received a booster dose of 0.2 ml. or 0.5 ml. of a multiple antigen preparation 36 months after receiving three injections in the primary series with a similar preparation.

The pertussis antigenic response was rapid and similar to the diphtheria and tetanus antigenic responses, although not as striking; also, it should be observed that reduction in the number of positive tests had been noticeable at the end of six months.

In Figure 7 and Table 4 it appears that 55 per cent of the children had a positive agglutination test at the time of the booster injection. The proportion

TABLE 4

Pertussis Antigenic Response Following Primary Injections and Following Booster Injections (All Children Received Three Injections of Multiple Antigen Preparations Containing Pertussis Antigen)

Month After First Injection	*Number of Children in the Group*	*Positive Agglutination Test*	*Negative Agglutination Test*	*Per cent of Positive Agglutination Tests*
5–8 months	365	200	165	55
12–18 months	365	242	123	68
36 months (at the time of booster injection)	196	107	89	55.6
2 weeks after booster injection	139	127	12	91
2 months after booster injection	188	156	32	83.5
6 months after booster injection	189	116	72	61.5

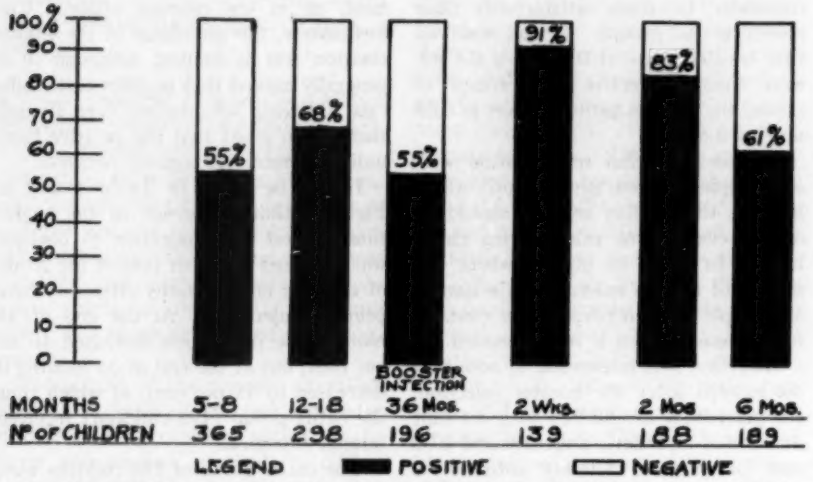

FIGURE 7—Opsonic Response Following 3 Primary Injections and Following Booster Injection with Multiple Antigen Preparation Containing Pertussis Antigen (All Children Had Negative Agglutination Test at Time of First Injection).

of positives increased to 91 per cent two weeks after the booster injection; at the end of two months it was reduced to 83 per cent, and at the end of six months it was further reduced to 61 per cent. Results were comparable in groups receiving 0.5 ml. and 0.2 ml. booster injections.

In Table 5 and Figure 8 it is evident that the group of children who received two primary injections of multiple antigen preparations converted from a negative to a positive agglutination test in 33 per cent at eight months after injection, and remained the same for 18 months. Following booster injections at the end of 36 months the proportion of positives was 40 per cent.

The response to pertussis antigen was observed in a group of 25 children. It has followed the pattern noted in diphtheria and tetanus, but results were not as good and not as lasting (Table 5 and Figure 8). The results of the test three years after inoculation reaffirm our previous observations and that of other investigators that two injections are not sufficient to cause conversion from negative to positive agglutination in a high proportion of cases. Neither is a booster injection sufficient to maintain a high proportion of positive agglutination tests.

The multiple antigen preparation was used for booster purposes in 0.2 ml. or 0.5 ml. doses with comparable results.

Comments—It would have been interesting to observe the antigenic response to the pertussis fraction in the group of children for a longer period of time to determine the length of time the children showed a positive agglutination test. However, this procedure could not be carried out. It may be of special interest to observe the relatively high percentage of children (55 per cent) having a positive agglutination test at the end of three years after three primary injections of a multiple antigen preparation.

CONCLUSION

1. As measured by antitoxin levels, the immune status of children who have

received a series of three injections of a multiple antigen preparation containing diphtheria and tetanus antigens is of a high order at the end of three years, following the first of three injections of the primary series. The immunity status of children who have received two injections is less adequate. These findings indicate the desirability of attempting renewal of protection by means of booster doses if reactions were at a minimum and if results following reinoculation proved beneficial.

2. Reactions following a booster dose of a multiple antigen preparation were greater than following the first and second injections of the primary series, but not greater than those following the third injection of the primary series. A dose of 0.2 ml. resulted in fewer reac-

TABLE 5

Pertussis Antigenic Response Following Primary Injections and Following a Booster Injection (All Children Received Two Injections of Multiple Antigen Preparations Containing Pertussis Antigen)

Month After First Injection	*Number of Children in the Group*	*Positive Agglutination Test*	*Negative Agglutination Test*	*Per cent of Positive Agglutination Tests*
5- 8 months	22	7	15	30
12–18 months	19	6	13	33
36 months (at the time of booster injection)	25	10	15	40
2 weeks after booster injection	4	4		(100)
1 month after booster injection	19	15	4	80
2 months after booster injection	6	4	2	(66)
6 months after booster injection	18	9	9	50

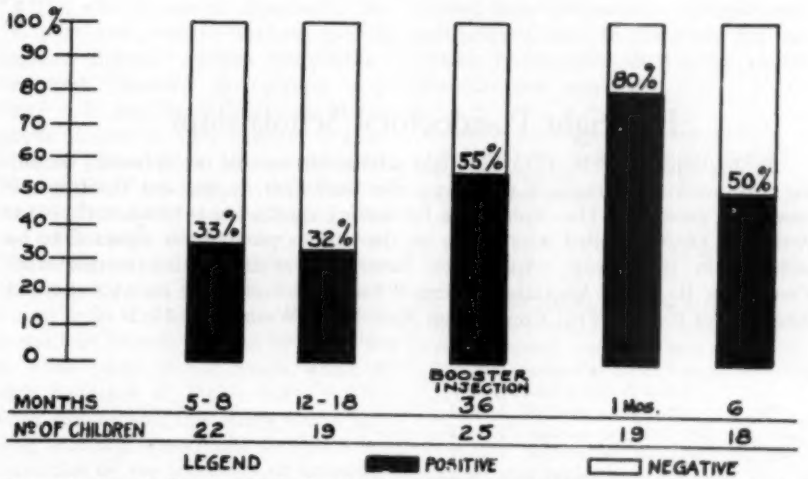

FIGURE 8—Opsonic Response Following 2 Primary Injections and Following Booster Injection with Multiple Antigen Preparation Containing Pertussis Antigen (All Children Had Negative Agglutination Test at Time of First Injection).

tions than did a dose of 0.5 ml. A single booster dose of the multiple antigen used in the study could safely be given to previously inoculated children.

3. Booster doses of a multiple antigen preparation resulted in an increase in antitoxin titer against both diphtheria and tetanus two weeks after injection, and the levels found at this time were maintained for at least six months, the last period observed.

4. Within the limits of titrations used, levels were found to be equally high after using 0.2 ml. or 0.5 ml. of the multiple antigen preparation, and the 0.2 ml. dose is therefore recommended because fewer reactions follow its use.

ACKNOWLEDGMENT—We gratefully wish to acknowledge the technical assistance and untiring efforts of Maud G. Gilbert, R.N., in the field work, Dorothy McInerney of the secretarial staff, and Dr. August Holm of E. R. Squibb & Sons' laboratory staff in performing the laboratory tests.

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Fulbright Postdoctoral Scholarships

Applications for 1954–1955 Fulbright scholarship awards for university lecturing and postdoctoral research in Europe, the Near East, Japan, and Pakistan are now being accepted. The closing date for making application is October 15, 1953. A booklet giving detailed information on the various programs is expected to be available in July, 1953. Application forms and additional information from Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., N.W., Washington 25, D. C.

Though the findings of the research reported upon here are of only limited applicability in our modern-day America, the nature of the research itself is still a basic matter. The report's presentation is of the sort that permits us all—researcher or administrator—to pick up a little knowledge in passing.

Observations on the Effectiveness of Various Scarlet Fever Antigens Used in Combination with Other Antigens in Multiple Antigen Preparations*

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County Commissioner of Health, Saginaw, Mich.; Professor and Head, Department of Hygiene and Preventive Medicine, University of Iowa, College of Medicine, Iowa City, Iowa; and Vice-President, E. R. Squibb & Sons, Division of Mathieson Chemical Corporation, New York, N. Y.

THE effectiveness of diphtheria, tetanus, and pertussis antigens used in various multiple antigen preparations has been reported in previous articles.[1, 2] It was shown that each of the above antigens is more effective in combination than when used separately. This paper is a report on the effectiveness of two scarlet fever antigens used in combination with other antigens. This study was carried out, not because of any belief that immunization against scarlet fever was advisable in the United States, but because it might be advisable in some parts of the world where a high incidence of highly toxic scarlet fever exists—and this study was a seldom recurring opportunity to obtain information on the feasibility of including scarlet fever antigen in a multiple antigen preparation. In the study the following preparations containing scarlet fever antigens were used:

No. 88895–96–97 *Three-antigen preparation*
Diphtheria toxoid, A.P., one-half strength
Pertussis vaccine, 10,000 million per ml.
Scarlet fever toxin—
Dose 1: 500 S.T.D. per ml.
Dose 2: 10,000 S.T.D. per ml.
Dose 3: 50,000 S.T.D. per ml.

No. 88898–99–900 *Five-antigen preparation*
Diphtheria toxoid, A.P., one-half strength
Tetanus toxoid (fluid), one-half strength
Pertussis vaccine, 10,000 million per ml.
Typhoid, paratyphoid A and B—
Dose 1: Millions per ml. 500, 250, 250
Dose 2: Millions per ml. 1,000, 500, 500
Dose 3: Millions per ml. 1,000, 500, 500
Scarlet fever toxin—
Dose 1: 500 S.T.D. per ml.
Dose 2: 10,000 S.T.D. per ml.
Dose 3: 50,000 S.T.D. per ml.

* This study was made possible by an annual grant made by E. R. Squibb & Sons who also provided all the biologic preparations.

No. 4391–2–34 *Four-antigen preparation*
Diphtheria toxoid, A.P.
Tetanus toxoid, A.P.
Pertussis vaccine, 10,000 million per ml.
Scarlet fever toxin, tannic acid precipitated—
Dose 1: 750 S.T.D. per ml.
Dose 2: 3,000 S.T.D. per ml.
Dose 3: 10,000 S.T.D. per ml.

No. 4394–5–6 *Five-antigen preparation*
Diphtheria toxoid, A.P.
Tetanus toxoid, A.P.
Pertussis vaccine, 10,000 million per ml.
Typhoid vaccine, 1,000 million per ml.
Scarlet fever toxin, tannic acid precipitated—
Dose 1: 750 S.T.D. per ml.
Dose 2: 3,000 S.T.D. per ml.
Dose 3: 10,000 S.T.D. per ml.

The group studied consisted of 418 individuals of whom 152 were free-living school children, 266 were normal or feeble-minded children, or feeble-minded adults living in institutions.

REACTIONS

As reported in previous articles,[1, 2] a nurse observed local and general reactions for a period of 11 consecutive days following inoculations. Obviously it was impossible to determine which antigen was responsible for the local and general reactions. It was observed that the groups which received multiple antigen preparations containing scarlet fever antigen had a slightly higher percentage of local and general reactions than other groups inoculated with multiple antigen preparations which did not contain scarlet fever antigen.[1, 2] This can be seen from Figures 1 and 2.

As a result of these observations we concluded that whenever inoculation against scarlet fever is desirable, there is no real objection to its use, because addition of scarlet fever antigens to multiple antigen preparations does not increase materially the severity of reactions.

It is recognized that scarlet fever protection at best is only partial, and that protection against scarlet fever has limited usefulness in this country because of the relatively mild course of the disease and the effectiveness of sulfonamides and antibiotics in the treatment of certain manifestations of the disease. At the same time, inoculation against scarlet fever may be a very practical procedure in children's homes and institutions for feeble-minded children, and in parts of the world which do not have adequate public health or medical supervision where scarlet fever is very prevalent or runs a severe toxic course.

It was arbitrarily agreed to evaluate the effectiveness of scarlet fever antigens by studying conversion of the Dick test from positive to negative. As is noted in the preparation list the scarlet fever toxin used was similar to that originally prepared by the Dicks; scarlet fever toxin, tannic acid precipitated was also used.

OUTLINE OF TECHNIC OF PREPARATION OF BOTH SCARLET FEVER ANTIGENS USED IN THE STUDY

The scarlet fever toxin was prepared from *Streptococcus hemolytic scarlatinae*, New York 5 strain No. 859, Dochez, on the following medium:

1,000 ml.	*Per cent*
Proteose peptone	1.0
Ammonium lactate	0.45
Succinic acid	0.2
K_2HPO_4	0.1
$NaH_2PO_4 . H_2O$	0.1
$MgSO_4 . 7H_2O$	0.02
$CaCl_2$	0.01
Distilled water	q.s.

Heat to dissolve, adjust to pH 8.0 with NaOH, boil gently for 3–5 minutes; filter through paper and dispense 1,000 ml. in Fernbach flasks and tubes at 20 ml. each. Autoclave for 20 minutes at 15 pounds pressure. After the medium is cool, sterile dextrose solution is added to each flask to make 0.25 per cent.

The scarlet fever toxin, tannic acid precipitated, was made by the method described by Veldee.[6]

DOSAGE OF PREPARATIONS

Preparations 8895–96–97 and 8898–

99–900 given at first injection contained 500 skin test doses (S.T.D.) of scarlet fever toxin. It was increased to 10,000 S.T.D. at the second injection and to 50,000 S.T.D. at the third injection. Dosage in some groups was 0.5 ml. (250, 5,000, and 25,000 S.T.D.). All the injections were given at one month intervals. An attempt was made to give three injections, although some groups received only two injections. Preparations 4391–2–3 and 4394–5–6 contained 375 S.T.D. in the first injection, 1,500 S.T.D. in the second, and 5,000 S.T.D. in the third injection of 0.5 ml. each. Dosages and intervals between injections were the same as used with other preparations in the study. The results are shown in Table 1, which lists the preparations used by lot number: number of antigens per preparation, and type of preparation with relationship to the number of children injected, the number of injections, the dose at each injection, and various intervals from completion of final multiple antigen inoculation to the Dick test.

In analyzing the results obtained in 266 institutionalized individuals, Group 1–5 (Table 1), it is evident that scarlet fever toxin as originally prepared by the Dicks, when combined with several

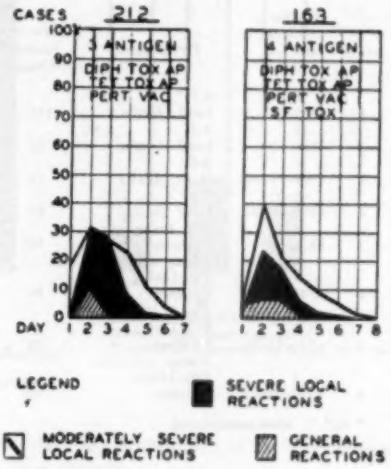

FIGURE 1—Reactions following first intramuscular injections of institutionalized adults with 0.5 ml. of various multiple antigen preparations.

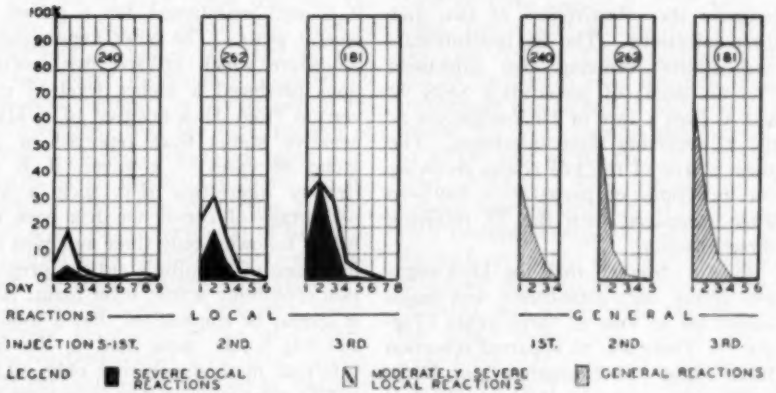

FIGURE 2—Reactions following intramuscular injections of children with 0.5 ml. of 4-antigen preparation (4391–2–3) containing diphtheria toxoid, A.P., tetanus toxoid, A.P. pertussis vaccine, and scarlet fever toxin, tannic acid precipitated.

TABLE 1

Scarlet Fever Antigenic Response Following Injection of Multiple Antigen Preparations Containing Scarlet Fever Antigen

Total Number of Cases—418

Group	Number of Antigens and Lot Number	Preparations	No. of Dick Positive Cases	No. of Injections	Dosage	Per cent of Conversion of Dick-Positive to Dick-Negative Status Months				
						4–6	9–12	15–18	24–30	36–44
1	3 8895–96	A.P.* Instit. Adults	113	2	0.5 ml.	73	..	..	..	..
2	5 8898–99	A.P. Instit. Adults	61	2	0.5 ml. 1 ml.	79	..	..	..	..
3	5 8898–99–900	A.P. Instit. Adults	27	3	1 ml.	78	..	..	88	..
4	3 8895–96–97	A.P. Instit. Adults	55	3	0.5 ml.	..	75	77	77	80
5	5 8898–99	A.P. Instit. Children	10	2	0.5 ml.	..	70	..	87	87
6	4 4391–92	Tannic acid prec. Free-Living Children	16	2	0.5 ml.	..	..	20	20	..
7	4 4391–92–93	Tannic acid prec. Free-Living Children	86	3	0.5 ml.	11	24	..	..	17
8	5 4394–95–96	Tannic acid prec. Free-Living Children	50	3	0.5 ml.	26	40	..	..	..

* A.P. = Alum-precipitated

other antigens (A.P.), produced a very satisfactory response after only two injections. This was shown by the high percentage of Dick-negative tests among previously Dick-positive groups.

Our figures are not large enough to compare the effectiveness of two and three injections. The 61 institutionalized adults receiving two injections (0.5 ml. each) of preparation 8898–99 had as high a rate of Dick-negatives as the 27 receiving three injections. The same is true of the 113 adults receiving two injections of preparation 8895–96 when compared with the 55 receiving three injections.

It was observed that the Dick-negative status, once established, was maintained for as long as three years (Figure 3). There was no apparent reversion trend from Dick-negative to Dick-positive in groups of children who had had two or three injections of a multiple antigen containing scarlet fever toxin. Also, there was no evidence that a 0.5 ml. injection was less effective than a 1 ml. injection.

The demonstrated results follow the pattern of other studies[3-5] which indicate that once conversion of the Dick test is made from positive to negative it is well maintained for a period of several years. The older immunization procedure which utilized five inoculations produced a higher level of conversion from Dick-positive to a Dick-negative status than reported in our group of cases;[3-5] however, it is extremely interesting that such a high percentage of conversion has been obtained following only three and even two injections of a multiple antigen preparation containing scarlet fever toxin. Also, it should be emphasized that a total of 115,000 S.T.D. were used in the five-injection method, whereas only 60,500 S.T.D. were given in three injections and 10,500 S.T.D. in two injections when 1 ml. injections of the multiple antigen were given and half of the above amount

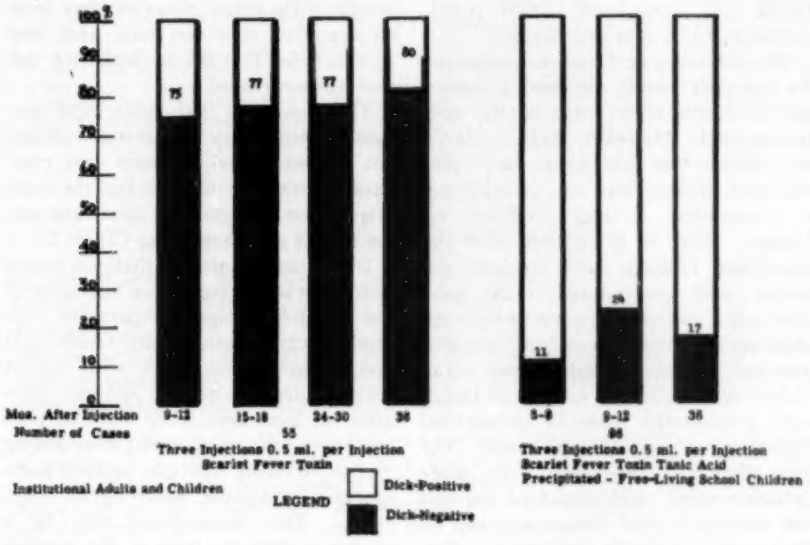

FIGURE 3—Antigenic response in Dick-positive children following injection of multiple antigen preparations containing various scarlet fever antigens.

(5,250 and 30,250 S.T.D. for the second and third injections, respectively), when 0.5 ml. (one-half dose) was given.

The scarlet fever toxin used for the group reported by us and that used in references 3 and 4, referred to previously, were presumably prepared by the same method. A comparison of results suggests that the same pattern of antigenic stimulation takes place after scarlet fever inoculation as in the instance of diphtheria inoculation, namely, that a specific antigen used in combination with other antigens is more effective than the single antigen used alone.[2]

In contrast results were very disappointing in several groups of children who received scarlet fever toxin, tannic acid precipitated, contained in multiple antigen preparations (Figure 3.). From Table 1 it can be seen that in a group of 50 Dick-positive children, only 26 per cent became negative six months after injection, increasing to 40 per cent at the end of a year. In another group of 86 Dick-positive children, who also received three injections of scarlet fever toxin, tannic acid precipitated, only 11 per cent became Dick-negative at the end of six months after injection. This percentage was increased to 24 per cent at the end of 12 months and decreased to 17 per cent at the end of 36 months after injection. This response is unusually poor compared to that observed with multiple antigens containing plain scarlet fever toxin. However, the dosage of scarlet fever toxin, tannic acid precipitated, was much lower than that in the other preparations where scarlet fever toxin was used. The preparation contained 375, 1,500, and 5,000 S.T.D. (total 6,875 S.T.D.) in the three injection course of 0.5 ml. each, while the plain scarlet fever toxin given in the same number of 0.5 ml. injections con-

tained 250, 5,000, and 25,000 (total, 30,250 S.T.D.) skin test doses.

The difference in dosage may account for the poor results obtained following use of scarlet fever toxin, tannic acid precipitated. Moreover, there is always the chance that our tannic acid precipitated antigen was not as antigenic a preparation as that produced by Veldee. Also, it is possible that the free-living children who received the tannic acid precipitated toxin were immunologically less responsive than the institutionalized adults and children who received the plain scarlet fever toxin. Veldee used twice this amount of tannic acid precipitated toxin in intradermal injections given two weeks apart. The fact that our injections were given intramuscularly and contained one-half the antigen in total dosage may explain the poor antigenic response. Evidently the longer interval between injections and the presence of the other antigens could not make up for the difference in route and potency. The fact that we had to cut the dosage in one-half to reduce the severity of the reactions from an intramuscular injection, while Veldee found twice the dosage unobjectionable when given intradermally, is noteworthy. However, some of the results obtained following two injections of 0.5 ml. scarlet fever toxin (totaling 5,250 S.T.D.) were much better than those noted following the use of three injections of scarlet fever toxin, tannic acid precipitated (totaling 6,875 S.T.D.). Three injections at monthly intervals are usually more effective than two injections at the same interval. The explanation, in whole or part, may be due to alteration in the protein content of the Dick toxin used for the Dick tests which might have caused a number of false (pseudo) reactions. To eliminate this possibility scarlet fever toxin was heated for two hours at 100° C. and the entire group of individuals was retested with heated scarlet fever toxin. Without exception the entire group was free from false-positive skin reactions, and thus we concluded that the original Dick test readings were valid.

The possibility that tannic acid precipitated toxin may not be stable should not be overlooked, because two comparable groups of children had the same preparation at about the same time and the results were conflicting (Table 1).

It is also of interest that six school children who received three injections of the multiple antigen preparation containing scarlet fever toxin, tannic acid precipitated, came down with scarlet fever between six months and two years after the injections, while there were no reported instances of scarlet fever among groups receiving multiple antigen preparations containing plain scarlet fever toxin. This circumstance may be a chance occurrence because the number of inoculated individuals in the two groups was relatively small.

CONCLUSIONS

On the basis of these findings it is concluded that scarlet fever toxin, as originally prepared by the Dicks and used in multiple antigen preparations, is an effective antigen capable of converting a large percentage of children from Dick-positive to Dick-negative. The Dick-negative status, thus established, is maintained for a period of three years and more without evidence at the end of three years of conversion to a Dick-positive status.

In situations where immunization against scarlet fever is indicated the addition of scarlet fever toxin to a multiple antigen preparation is justified.

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The Journal 25 Years Ago

Daniel Webster said "what is valuable is not new and what is new is not valuable." "The Responsibility of Government in Public Health," by E. L. Bishop, M.D. (*A.J.P.H.* 18:705–709, 1928), would seem to bear him out. Dr. Bishop's article and the experience he contributed are among the origins, of which there are undoubtedly many older ones, of the present emphasis on the development of rational local health jurisdictions. Said he:

> It would seem that one of the most important and one of the most immediate responsibilities of government in protection of public health is that of providing at the earliest possible time for wide extension in the development of reasonably adequate local health service. . . . Unless this is done, neither the federal nor state departments can function effectively and neither can give that measure of service to the nation or the commonwealth that it should give, for there will be no local agency through which it may reach the individual citizen. Hence, both the federal and state governments should concern themselves immediately with preparation for the expansion of local health service. To the extent that they fail in so directing their activity, they fail in fulfilling their major responsibility.
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> . . . The cooperation of all three elements of government in carrying out the local health program makes for a coordination of health activity the country over. The knowledge of one service becomes the property of all services; elements in the program of one service become parts of the activity of other services. Still another most desirable objective which may be achieved through this cooperation is the stabilization of local organization. The county health department has proved itself as an element in our scheme of public health administration and it is very desirable for the three elements of government to participate in the development and expansion of local health service.
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> . . . Some other method than the county health department must be found to serve the needs of smaller and poorer counties. Some authorities have advised increased subsidies from the state and perhaps federal appropriations. Others have suggested district health organizations, and it has even been said that in extreme instances the state should assume the entire cost. The latter proposal is entirely unsound from the standpoint of administrative practice. It would do no more than teach the community dependency. It is probable that the final solution will come through a combination of the suggestions involving combinations of local governments and increased subsidies from the state. Certainly this seems to be the more sound and promising point of view. The principles involved have ample precedent both for the federal and state governments in provisions that have been made for the development of educational activity, for the improvement of agriculture, and for the construction of roads. Certainly no one can dispute the fact that the welfare of one community affects the welfare of other communities. It is equally true that the welfare of the country is but the sum of the welfare of its communities and therefore state and federal governments have a definite responsibility in the welfare of every community.

The late Dr. Bishop was for nearly 20 years with the Tennessee State Department of Health, first as director of rural sanitation and later as state health commissioner. Since 1934, until his death in April, 1951, he was the director of health for the Tennessee Valley Authority. In 1950 he received a Lasker award of the Association for his outstanding contributions in the field of public health administration.

Though this paper was intended primarily to introduce the two that follow, defining and clarifying terms so that speakers and hearers might think the same language, it also stands on its own feet as a sort of working base for any who may someday be beset by the doubts its title suggests.

What's the Score?*

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WE hear often that the principal cause of differing opinions is a misunderstanding of the meaning of words and phrases used. A prime example is in this matter of surveys and evaluations. When a health problem in a community is considered, we very often hear, "Let's get a survey." That sounds reasonable, does it not? Public health people are trained that the first step in solving a problem is always measurement. But when the phrase becomes a public cliché, when other than trained public health people are in the discussion, we may be leading to confusion rather than appraisal.

When measurement is suggested even in an exclusively professional group, there is a reasonable chance that not all present conjure up the same picture. So, in the hope of making this a notable occasion, let us first define our terms.

There are several interrelated factors in all public health problems. There is first *need*. Need refers to the lack of something without which good health is difficult or impossible. Thus, a poor community water supply is a need, for lack of a good one may lead to endemic enteric disease. So, too, the absence of tuberculosis hospital facilities is a need, for nonhospitalized cases of open tuberculosis in the community endanger the community's health. Need seems a fairly obvious entity, which we all recognize.

But not necessarily is the need obvious to the public. For the community population there is instead the factor *want*. Now "want" may not be what it is called in the community. It seldom is. Nevertheless, the desires of the community, based on good information and logic or on misinformation and sophistry, constitute the very recognizable factor, want. And woe betide the health expert who insists flatly on the need for preschool immunization programs when the community wants its children's vision tested.

The activity engendered either from need or want or a more or less judicious blending of the two is expressed in *services*. Fortunately, it is being pointed out more frequently of late that there is a vast difference sometimes between the amount of services performed and the amount received, that, for example, counting the number of doorbells pushed is not quite the same as counting the number of family members who have enjoyed a public health nurse's visit. In one we have counted the number of times the wheels have turned, regardless of direction or skidding. In the other we have measured the distance traveled

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toward the established goal. Both counts are important when we come to consider *efficiency*.

Since need and want are not necessarily synonymous, they are often completely unrelated. Here, then, is a third community factor—*usage*. Usage is the community utilization of a service. You can provide, from some benevolent philanthropy, the services a community needs, but if it does not want them, it will not use them. Bear in mind, then, that usage alone is not an accurate measurement of need. You may remember the claim once made that existing hospitals had all been built in the most needed locations, for most of the admissions came from within five miles of the hospital door. More recently, too, it was demonstrated in St. Paul that a well used community facility was actually running full steam in serving to saturation a quite small percentage of the population, rather than the whole community as had been assumed.

"Public health" has had to have recalled to it that people are human, live in families and social and work groups and spend more time striving consciously for economic and social goals than they do for health standards. It took Robinson to point out to practicing physicians that "patients are people." We cannot overestimate the value of the same reminder given public health by Bradley Buell and Associates. The future of public health will be more effective for this perspective.

But back to our problem. "What's the Score?" There are various ways of measuring these different factors in community health. The self-survey is made by community citizens, with greater or lesser proficiency in public health matters. It very often is an estimate of community *needs* from the point of view of *wants*. It is not a highly scientific nor a very exact measurement. But properly used it is a prime educational tool. Recently, a newly appointed health officer, whose employment by the way had been facilitated by a self-survey, scoffed at its scientific ineptness. "Why, they took the door-answerer's judgment as to whether there had ever been brucellosis in the family." This was valid criticism if the true brucellosis morbidity total was being measured. But the summation of the number of cases householders thought there were was effective in organizing community action to find out the truth of the matter and what to do about it.

The *professional community survey* is another matter. Here the qualified and experienced professional individual or team measures *needs*. There may be reference to wants, but usually it is fleeting and only as an excuse as to why needs have not been met. The professional survey is indispensable in developing a pertinent program, whether it be done painfully by the new health officer working on his first job or competently by an experienced survey man. But I submit that the community may not accept the survey, much less its findings, unless its concern has been aroused, until its wants seek matching with its needs.

The professional survey, instead of measuring needs alone, may compare needs with facilities or services. This permits formulation of judgment—in our humanity most easily accepted from the outside expert—as to appropriateness or pertinency of program. This type of investigation may be requested by the health officer as a review of his development of program. More often it is requested by community members with the same question in mind.

Of more recent vintage is the survey to determine usage. This compares wants with services and does not measure the needs too well. Nevertheless, the usage survey has considerable of interest and value. I have referred before to the St. Paul survey by Community Research Associates. There are

also the series of inquiries reported by Hay and Larson of the Cornell University group describing the use patterns of various communities with different facilities available.

It is interesting to speculate as to whether services develop in response to want or the reverse. Certainly, there is a causal relationship whichever the direction and those purists who insist on basing plans entirely on need will do well to consider these usage studies. Whether significant or not, I am reminded here of the recent remark of a colleague, who said: "Let's not put any more people on the staff to help us. Whenever we do, it is only a matter of weeks until demands for service in the new area have increased to where we are more overloaded than before." It seems we are fast approaching that millennium predicted by Lowell Reed when it will take 1,003 people to provide service for every 1,000 of population.

In any event, the correlation among need, want, and usage factors is so intricate that the increased collaboration of the public health specialist with the social scientists seems indispensable.

Finally, at this stage, we have evaluation or appraisal. This may be a comparison of the activity done with the service rendered as mentioned before, or it may be a comparison of services rendered with results achieved. In a variety of ways, the evaluation is an attempt to determine whether the effects achieved are worth the effort—or tax dollar—expended. It is also an attempt to determine the efficiency of the translation of effort into achievement.

This may be done by a professional survey of a whole or a specific part of the community health program. The professional survey may be by expert visitation and inquiry, or it may be by expert analysis of questionnaires completed by, say, the local health department staff.

The visitation system is practiced by the Public Health Service and the Children's Bureau for state health departments and by them in turn for local health departments. Attention is directed principally at methodology. What, in view of observed or recorded experience in a variety of places, is the best way to carry out this program? It is understood, of course, that standard methods must always be adapted to the peculiarities of the population, both of the area served and of the department providing service. But, by and large, such visitation is helpful if only to give perspective.

The questionnaire method uses as its measuring stick standards of achievement. Many, at least, of the items in the APHA *Evaluation Schedule* do not demonstrate causal relationship between the success achieved and the activities of the health agency. They do, however, demonstrate the inadequacies toward which appropriate action by the health agency may be directed subsequently.

The APHA *Evaluation Schedule* has a long history during which its merits have been well demonstrated. No one will claim that it has reached its perfect state. Its standards, against which community health is measured, are arbitrary and it is not yet agreed whether they should be established on the basis of the perfect score attainable or the median of current practice plus a percentage. The *Schedule*, too, has its difficulties because it is trying to do two things at once—measure attainments against standards where that is possible and educate the health officer.

In a much more difficult period of growth and development is the spreading practice of state evaluation schedules, used with cooperating local health units in an attempt to stimulate progress. At the same time there is desperation to obtain some data which somehow will satisfy the federal auditors and the Bureau of the Budget that a specific

dollar of certain serial number, originally issued in a categorical appropriation, has actually been expended at the local level down to the last cent in the category for which it was designated with no foolishness about basic general health services. These state evaluations differ considerably from state to state and the Association of State and Territorial Directors of Local Health Services has assumed a yeoman task in trying to develop some common characteristics.

The community self-survey, the professional survey of different aspects of community health, the evaluations of program methodology and achievements are all expressions of our need to establish bench marks. In the communities where health is measured they have relationships one to the other and selection of the type and method of measurement must be done with care. Altogether they constitute our need and want to discover "What's the Score?"

Harvard's Student Medical Care

Harvard University has begun an experimental program in providing comprehensive medical and health care for students in its medical and allied schools. Under the plan, office and home care and hospitalization are provided on an insured basis through Blue Cross for about 800 students in the medical, dental, and public health schools and in the division of medical sciences. Office care for the 400 employees of the schools is also provided.

The program, focusing on preventive medicine, is designed to meet the special health problems of students and employees in the medical teaching area. Its experience is expected to be valuable in the planning of health and medical services for other parts of the university.

A full-time medical director is in charge of the program. He and his staff have staff positions both in the Harvard Medical School and Peter Bent Brigham Hospital. They are available at all times for consultation by students and employees. A student fee of $50 for the calendar year provides such services as preventive medicine, general and specialist care, diagnostic procedures, usual physical examinations, and health evaluation, as well as hospitalization.

Lasting benefits from the self-survey may more likely be realized in the end effects upon the surveyors themselves than from the validity or force of the findings their survey brings to light. But that, as this paper points out, is a matter to be entered on the credit side of the ledger.

Community Self-Survey in Health: A Social Scientist's Viewpoint*

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I AM constantly impressed, in my conversations with public health workers, with their comments regarding the shift from communicable disease as a prime target for public health practice to the chronic illnesses associated with the life cycles of a population increasingly involved in the process of aging. While knowing little concerning the technology of this type of work, it does seem to me that the problems of prevention become all the more pertinent in the matter of chronic illness, for such concerns as heart disease and cancer would seem to provide no escape from the limitations of treatment after the fact. Now, I cite this shift, which appears to me to be fundamental, in that the sound application of public health practice will, I believe, need to involve the members of the great society more than it ever has before. If this is to occur, we must be constantly vigilant in assisting the people, themselves, in terms of family, community, and other social units. Practically all public programs have increasingly seen fit to encourage, more and more, the participation of lay people in the planning and carrying out of program details. A great number of devices have developed and, not the least among them, the community self-survey of health, in which the lay residents of a particular local area share in the planning, the execution, and the eventual tabulation of results.

First of all, and at the risk of repeating, we must appraise the community self-survey of health, and this is first and last with me, in terms of its usefulness in carrying a concern for an increasingly adequate health environment into the "life-streams" of the people—or, the extent to which it helps us to shift the focus from the individual, as our target, to the family, the community, the county, and the other units with which we will be, if we are not already, concerned.

The community self-survey of health works in this direction because of its relation to two irrevocable tenets of educational theory: (1) that there can be little education without activity, and (2) that there can be little education accomplished unless those involved are placed in situations that help them to view the problems peculiar to them, as well as the problems of the outside world, from the vantage point of others —neighbors, public health workers, physicians, political officials, and all the

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others active in the arena of health. This is the matter of helping the recipients of public health services to stand in the place of many other types of people in taking a look at the health environment in which they live.

Another problem in adult education, regardless of the subject matter involved, is the training provided to lay people in playing, what I like to term "objectivity roles." The task here, is one of thinking in terms of problem and solution, in terms of a frame of mind predicated on analysis and logic. The lack of "analytical acuity" on the part of lay participants is a much expressed complaint of professional workers. The community self-survey of health offers the opportunity to look at problems analytically and to follow logically to alternative solutions. Regardless of what may happen in health improvement as a result of a self-survey, it does provide a device for instruction and practice in rational, logical, and analytical approaches to problem solving. In this regard, I wish to point out that, in my mind, no other barrier to community action is so great in small communities today as that of lay people being so "problem-oriented" —often to the almost total exclusion of being "solution-oriented." An old adage states: "Planning without action is futile; action without planning is fatal." In my own experience I have found countless lay groups filled with anxieties about a local problem, but bogged down on the logical follow-through in the sense of proposing short-range and long-range procedural steps or solutions. My point is: the community self-survey of health can provide a learning experience for logical thinking by achieving a balance between orientations to problems and orientations to solutions.

Finally, one must ask of the self-survey process, "Does it provide adequate, valid, and pertinent health facts?" The answer here will depend on the kind of technical advice rendered to the self-survey by public health workers. But I must point out that, to lay people, the adequacy, the validity, and the pertinency of health facts are often a relative matter. I have learned the hard way that it is not so much what the facts actually are, *but what people believe to be the facts*. Facts mean nothing in the face of *attitude resistance* on the part of the people. This comment leads to my final point: that the community self-survey of health, due to the points mentioned above, provides an atmosphere for attitude change. Most programs of this type deal with re-education which, for the most part, is an essential shift in attitude toward a receptivity and a permissiveness to consider the rearing of health problems and their solution as a part of normal, everyday living. I firmly believe that your programs have as their end point the transfusion of health concerns and solutions into our national culture, until public interest in these concerns and solutions is a human value prescribed to by the majority of the society. The device of the community self-survey of health, beyond its requirement that the people, themselves, become working members of the health team, will—and we still know little about it—work in the direction of attitude change and re-education. The least that may be said is that, in these days when it is so crucial to seek a two-way flow of communication between the professions and the masses at various levels of public life, the self-survey can rear a platform upon which lay people and professional workers may ply their labors shoulder to shoulder in a common cause.

When the "outside" expert is enlisted in a community survey he joins the team, not to do the leg work but to contribute his judgment in impartial evaluation and—most of all—his informed interpretation of revealed facts. This important distinction is stressed here.

Measuring Public Health*

The Professional Survey—Evaluation of Needs and Facilities

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WHY, When, Who, and How is a so-called professional or expert from outside ("Glib fellow away from home") needed to conduct a health survey of a community? Some of the answers are obvious; some are worth reflection and testing; some are related to characteristics of people and their "home towns." Concurrence, endorsement, interest, sympathy, culture, tradition, diplomacy, and timing are among the factors.

PURPOSE

A health survey or inventory of a community which is conducted with the help of a professional consultant or "outside expert staff" may have features which are common also to a "self-appraisal" process undertaken in the same locality at a different time. It may be even a continuation or a later stage or outgrowth of a self-appraisal in which preliminary findings suggested the value of a more comprehensive approach, or a more intensive technical study of a special function, such as chronic illness, medical care, dental or mental health, or rehabilitation.

The purpose may be of a collective nature to meet special needs or for long-term planning. The people—the consuming public—are the same (whether self-study or specialist-guided). A change to an older population may present specific and general problems which differ from those of a young population when the same community was surveyed years previously. There may be a long established health policy, visualizing a goal of "Health for All" in line with the World Health Organization definition,[10b] or the establishment of a policy may be at least one of the purposes of the study. The facts are desired for joint planning and cooperative action leading to better coordination and improved services by competent personnel in answer to the "mandate of the people."

In the evaluation of community health problems and the development of plans to meet them, a wide diversity of objectives, scope, and technics will be observed under varying circumstances of place, time, and other conditions. Attention is directed also to plans, postulates, principles, practices, and standards. Besides, there are questions of project participation by whom, when, and how?

SCOPE AND METHODS

We are concerned here with administrative studies of the health needs and resources of a community and numerous

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related factors, analyzed under the guidance of experienced professional personnel, without giving detailed suggestions of how to conduct a survey.[1]

There is an upswing of interest in surveys resembling that of twenty or twenty-five years ago.[2] It is noteworthy that the president of the Rockefeller Foundation in the review for 1950 and 1951 refers to these years as a "period of world survey, self-examination and adjustment to the changing conditions of a world in transition"; and also adds the words of good example that "actually plans and programs are continually under appraisal." In the United States, the origin of the comprehensive study usually dates from 1909 and the Pittsburgh study, preceded by the classic reports of Chadwick and Simon in Great Britain, of Shattuck in Massachusetts, and of Le Play in France and Booth in England during the latter part of the nineteenth century.[3]

In a professional survey, light may be obtained early in a situation by ascertaining what are some of the opinions of staff members as well as of board and committee members of official and non-official agencies. It is useful sometimes, for example, to obtain from bureau heads in a large organization, as well as from directors, their ideas of present objectives and targets, how nearly the goals are being met now and what are major obstacles, if any, as well as what changes would lead to improvement and what might be the long-term goals.[4] To define problems and to help determine unmet needs, the survey has served functions of education and public relations,[5] but special studies of this nature must be integrated with a comprehensive program of action and utilize methods in a manner to avoid bias and pressure unduly.

In the school surveys conducted under the guidance of Clyde Hill and his associates at Yale, joint efforts of consultants have been linked with those of local groups. This was illustrated, for example, in the cooperative study of the Lincoln, Neb., schools in 1945–1946. Representative staff committees, working with consultants, collected and interpreted facts and observations.

Some of the topics covered were: the work of the board developed through experience, relationships of board and of staff, facilities and conditions of employment, clerical assistance needed, public relations, evidence of progress. It was recognized that administrative problems needed to be studied in reference to the past as well as to contemporary conditions. Only to look at the present would fail to disclose whether conditions were improving or deteriorating and fail to show whether other pressing problems were overlooked. As the study proceeds, discussion is useful between a professional consultant and the executive, and with the board and committees to consider possibilities for the future and desirable changes. Modifications of organization and practice grow out of joint studies of this nature while reports are being prepared. A different procedure, in the same spirit, characterized a part of that survey and dealt with a special study of administration. For this, professional surveyors assumed responsibility for working with the board and superintendent directly rather than with a committee. Data were obtained from administrative personnel, from observations, and investigations, supplemented by material gained by the consultants from specialized studies.

For information and evaluation purposes, the processing of information and analysis may involve both evaluation and interpretation. Evaluation involves examination for pertinence, credibility of source or agency, judging from previous experience and present conditions, and accuracy. The interpretation of significance after evaluation embraces meaning in connection with what is known and other factors. As described in the official statement on the local health department by the American Public Health Association,[6] a basic type of service to be provided routinely is the recording and analysis of health data. A variety of data are necessary to define and locate health problems and assure sound planning for optimum

health. These include information about the characteristics of the population, the incidence and prevalence of disease and impairment, and the disability and mortality resulting. Equally important is accurate information on the availability, utilization, and quantitative adequacy of health personnel, facilities, and services.

For various purposes, the *Appraisal Form* and the *Evaluation Schedule* developed by the Committee on Administrative Practice of the American Public Health Association have proved useful in stimulating better record keeping, in promoting review of activities and services for comparative purposes, among other uses.[7] The staff of the committee has conducted tests of criteria which have been reviewed in a preliminary manner by the committee. They have been useful as a means of informing the public regarding activities of health agencies. Yet we need to develop better methods of defining the health problems of a community and for determining how well programs meet the problems and achieve the objectives in mind. Investigations for the purpose should help to define in more precise terms the objectives of programs and to measure accomplishments in relation to these purposes. We still need better standards and codes for use by the professional consultant, and for self-studies, too, as measuring devices, base lines, and targets for health programs.

Basic studies of Community Research Associates, Inc., may throw additional light on the development of reasonable criteria and interrelationships of the parts of the social structure. A pilot study of social conditions in St. Paul, Minn., revealed, among other facts, that about 6 per cent of the families requiring health and welfare services were absorbing more than half of all the available services. It also pointed up the need for a family-focused attack on the problems which keep families "dependent" and affect the health and welfare balance of the whole community.[8]

As another illustration of the approach through consultants, reference may be made to two reports by the APHA of studies in New York City. The primary focus in the first study was on the City Health Department and on other related tax-supported services for public health. But there, as elsewhere, these health services do not operate in isolation. It was necessary to study the place of these services in the total community health program. The report of a series of studies in different fields, submitted through a technical director to the Mayor's Committee, was based on findings in 1951 from field inquiries by 28 consultants with the help of a small central staff and of health agency cooperating personnel. The reports of specialized consultants were studied by a survey project directing team of four. Interviews and conferences with employees were held by the consultants who studied records and reports and made cross-section observations in the field. From 25 or more local people in position to know conditions special counsel was obtained by interview, panel discussion, and correspondence. Cross-references were made to other studies in municipal fields, such as hospital services, civil service, business management. Key points of future attack were presented in the final report, with description of services and organization and principles on which better health service provisions depend.

Subsequently, as a continuation or outgrowth of the basic comprehensive survey, a study of medical care services was made in New York City, under the same directing project team. The primary focus was on the Department of Welfare and to the relationship of these services to other tax-supported health services. This relatively short study was directed chiefly at strategic administrative problems and at relation-

ships in the city government. Meanwhile, other consultants study fiscal, administrative, personnel problems, and management.

On a state-wide basis, studies by Carl Buck, Dr.P.H., and Roscoe Kandle, M.D., in California, Massachusetts, Illinois, and more recently Pennsylvania (*Pathways to Progress and Keystones*), among others, have helped to focus attention on principles, policies, and organizational structure besides helping local and state groups to appraise conditions and look to the future.

SPECIAL FACTORS

Changes occurring in many cities have to be kept in mind, such as obvious developments noted in a recent issue of *Tax Policy* (reported by New Haven Taxpayers Research Council, Inc.), whereby, for example:

1. The population of the city is pushing outward from the center of the city to the periphery and beyond.

2. Population loss generally results in lower land values, and consequently, in lower tax revenues from land.

3. To the limited extent that the outgoing population is being replaced, it is likely to be by persons with less taxpaying capacity and with greater potential demand for welfare services.

4. The outgoing population does not sever its ties completely with the central city. Many persons commute back to the city in order to retain the same jobs. Many others maintain frequent contacts with the city. Thus, both groups, although no longer contributing directly to the city's revenues, greatly increase its traffic problems.

5. Industry, like population, has also shown a tendency to decentralize.

6. Shopping centers are springing up in suburban and rural areas and tending to decentralize shopping activities formerly centered in the city.

7. Technological developments, for example, rapid transit, improved highways, more and faster automobiles, improvements in home building procedures, rural electrification, rural telephones and television, make the outward spread of population both more practicable and more appealing.

PLANNING AND FOLLOW-UP

Administratively, from outward appearances, the operations may be interpreted by governing officials and advisory boards as according to highest standards of public service.[9] Some questions may have arisen somewhere or sometime, about perplexing organizational problems, charter and code provisions, lack of coordination, long-term capital improvement plans (efficiency survey), and use and assignment of available man power and equipment. Health organizations usually have few if any staff members skilled especially in governmental administration, political science, and business management—a serious lack to which corrective attention is being given in a few places. Some board people think of a study as either an "investigation," or as an efficiency survey to find out "what we are spending our money for and to see if we can reduce the cost of city government" even if, as always, the proportion of the budget for health purposes is one of the smallest items.

An efficiency survey, so-called, furthermore, if badly managed and undertaken with wrong objectives, by rule-of-thumb surveyors lacking background or help from professional health workers, or under wrong auspices and by wrong participants can be damaging to modern progressive government. Witness, for example, some recent classification studies and numerous salary studies! Sometimes changes come only in a crisis, and often the purpose of a survey is for inventory and base line uses in a contemplated new regime. A good survey requires skilled and active staff work. In planning, also, stock needs to be taken of possibilities for subsequent action as well as essential enthusiastic reception and acceptance of the report. Although resources may seem to be used fully, outside, impartial evaluation may foster continued development and improved practices. Even skilled local

executives may wish to share responsibility for opening up "sensitive subjects." The survey report might consider the relative need for various improvement undertakings, or installation projects, and suggest priorities as among them, as well as to indicate the legal, financial, and administrative feasibility of the specific items.

In answer to the question of "How much money are we going to save as a result of the survey?" we may be mindful of a reported reply of an expert in the administrative survey field:

> I cannot and will not hold out the hope to you that you will be able to prove the saving of even one single dollar as a result of this survey. This council, operating under the laws of this state and charter, determines the level of service that the city government is going to provide, and those decisions by you largely establish the cost of the city government. It is true that some methods of doing things are more efficient than other ways, and we shall help you try to find the most efficient methods. In some cases, however, the increased efficiency is manifested in better service, rather than lower cost, or saving. . . . Efficiency in a city government is not all measured by the slide rule or the cost accounting report, nor even by the comparative tax rate, etc. But there might also be added "Public Health Is a Purchasable Commodity."

An administrative survey often includes three things primarily: study and recommendations about the organizational structure, review of operating methods with general recommendations for improvements, and determination of appropriate areas in which to undertake detailed installation programs. The administrative survey extends up to the next vital stage to be undertaken by the follow-up group—the actual installation process.[10] Maximum local participation is necessary, besides attention to office space, able secretarial help, and other arrangements for the project in order to capture maximum benefits.

INTERPRETATION AND UNDERSTANDING

Too much emphasis cannot be given to the need for people with competence to secure and interpret more and better facts in order to show more clearly and precisely what communities can do to prevent and control the problems of the individuals and families. The cultural lag, where knowledge of man as an individual social being sometimes conflicts with knowledge of the physical universe deserves study.

In public health Dr. Kandle observed that the science of epidemiology has application for basic work, involving systematic inquiry at the outset into when, where, who, and how many people were affected by disease and now giving leads about what communities can do to reduce or control the amount of communicable disease and the hazardous consequences of maternity and infancy. "We must push our concept of epidemiology further," he says, "into broader areas of social and family life if we are to progress in understanding what communities can do to reduce the hazardous consequences of chronic disease and disability. In so doing we come closer and closer to those who must seek epidemiological knowledge about the incidence, prevalence and social mortality of dependence and maladjustments."[11] This requires the slower, harder but more inventive technic of individualistic experts working together instead of traveling the free and easy road of separate action. A multiple approach was used in the attack on hookworm. A family approach is also required in studying nutrition. Surely the rheumatic fever complexities call for a synthesis of all social disciplines.

According to carefully prepared estimates reported by Dr. Buck, public and private services in the field of health, welfare, and recreation cost about 13 billion dollars annually in the United States. Hence, this human life conquest constitutes big business worthy of concentrated attention on the whole family and the total community rather

than merely on special segments. This requires coordinated planning and cross-fertilization of the various disciplines. Limitless opportunities are before us, whether in the neighborhood of the jungles of the city slum or of the rural areas of the Amazon, where significant accomplishments can be made.

Molina has mentioned in Chile [12] the importance of assessment results through periodic staff evaluation as an essential factor in the organization and development of effective public health programs. Through expression in vital statistics, illustration can be given the community to show the purpose and yield of resources and efforts invested, and of the desirability of increasing that investment in a given direction. Besides giving additional knowledge and opportunities for improvement, it is an antidote to routine and a means of attracting to public health the best qualified professional workers. In addition, it provides a method of self-criticism valuable in redefining objectives according to the cost and yield of each activity and focusing needed attention on the economic value of public health.

RELATIONSHIPS

As is so well stated by Winslow, "on the higher as well as on the lower level of evolution, it is the development of more and more complex interdependent wholes which is basic,"—the relations between living things and not their constituents—the organization problem of relationships.[13] There is need to give the people responsibilities for community participation together with the assistance of professional staff and of consultant in studies, especially in view of the importance of understanding local and national, social and cultural patterns in relation to the successful prosecution of health programs and the intelligent constructive follow-up of survey findings to obtain future cooperative action. The process of interpretation may be a function of higher authorities, but there must be understanding among the people at different levels for acceptance and wholehearted application. All elements of a program require attention, including examination of records and reports besides the review of facilities and a consideration of personnel, quantitatively and qualitatively. While there are many different types of survey, with different aims, as for example, the research survey, the evaluation survey, and the total diagnostic survey, primary consideration here has been given to the latter, made for original planning for community health services and for extension of existing services. Sometimes it is useful to undertake the survey in at least two stages, with a pilot study which would point out the most outstanding problems and serve as a rough orientation for further inquiries, and a fuller general survey for which a simple plan is required. Clinical sampling may be needed to make an accurate assessment of certain special problems.

In planning the information which the survey should require, it is necessary to learn not only what the health problems are, but also what are the resistances in the shape of customs, practices, and beliefs, which may impede their solution. The report listed earlier from WHO, gives an illustration in one group by the example of an African tribe who hid their children from the visiting health officer when he came to find if any of them were suffering from smallpox. They did so because on a previous occasion the veterinary officer had killed all their cattle which were suffering from foot-and-mouth disease.

When the survey is completed, the analysis of the results usually requires a higher degree of expert knowledge than the collection of the information, and it is here that the outside expert assistance, without vested interest or bias, may be of special value. The sur-

vey is not an end in itself, nor a panacea, but is a preliminary to action. And the survey can be a useful means of education of the public in health.

Action may be slow, patience and faith may be tested. An understanding of motives and ideals for health, peace, and prosperity is essential, even at times keeping in mind for comfort if not for explanation:

> How smooth the sea beach pebbles are!
> But do you know?
> The sea takes a hundred years
> To make them so.

Reflections on the inspiration and guidance obtained and the progress made over the hundred years since the Lemuel Shattuck survey report was prepared give renewed courage and confidence.

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More in Pennsylvania Merit System

A recent executive order of Governor Fine brought nearly 900 additional employees of the Pennsylvania State Health Department under the department's Merit System. A merit system plan for the department, as recommended in the public health survey made by the American Public Health Association, was submitted to the Governor by the Advisory Health Board of the state some months ago. Previously, a first group of more than 600 employees had been brought under the system. The 1,500 workers now covered by the system represent approximately one-third of the State Health Department employees.

For others than pathologists and medical laboratory technologists the chief value to be gained from reading this paper may lie in the wholesome respect it will create for the difficulties imposed upon the laboratory—in part at least—by wholesale dosing with antibiotics.

Recent Studies on Nonspecific Urethritis*

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DURING the past year, our laboratory has been actively engaged in the study of nonspecific urethritis and prostatitis in young males. By definition the term "nonspecific" completely excludes the gonococcus and other bacteria usually considered to be pathogenic. While some workers prefer the term nongonococcal for those cases apparently acquired by sexual contact, we feel that nonspecific covers these cases. In fact, all of the patients studied gave a history of sexual exposure from days to months prior to the onset of the initial acute phase or acute relapse. Those cases which were due to trichomonas, trauma, foreign body, chemical irritation, and obstructive lesions were eliminated from the study.

This condition was noted during the closing days of the last war. Since the outbreak of the Korean conflict the incidence has increased, especially in service men who were stationed overseas. Babione [1] reported that 1,500 cases were seen in less than a year in one large naval base. The purposes of our study were: (1) to define an etiologic agent, (2) determine the role of the pleuropneumonia-like organisms (PPLO), and (3) determine the most satisfactory method of treatment. Close cooperation was necessary between the urologist and the laboratory.

An elaborate and detailed method for obtaining the urethral and prostatic specimens was used to control bacterial contamination. After a thorough cleansing of the glans, the external meatus was swabbed with a sterile applicator. The first portion of the specimen was discarded and the rest of the sample collected on sterile, cotton-tipped applicators. These were inoculated in trypticase soy broth and a special PPLO isolation broth. Chocolate blood agar was inoculated directly and smears made for Gram-staining. The PPLO broth was essentially the one used by Morton, *et al.*[2]

50 gm. Bacto-beef heart for infusion
5 gm. sodium chloride
10 gm. peptone
1 liter distilled water

Crystal violet is added to a final concentration of 1:100,000 and potassium tellurite to a concentration of 1:50,000. Experience has shown that the addition

* Presented before the Laboratory Section of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 21, 1952.

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TABLE 1

Susceptibility of PPLO to Antibiotics

Strain	*Penicillin (Unit/ml.)*	*Streptomycin (μg./ml.)*	*Aureomycin (μg./ml.)*	*Chloramphenicol (μg./ml.)*	*Terramycin (μg./ml.)*
07*	25+	5	0.3	2.0	0.2
48*	25+	10	0.5	2.5	0.4
Campo "L"*	25+	5	0.6	5.0	0.1
Sherman	25+	10	1.0	5.0	0.1
P.H.	25+	10	0.5	10.0	0.5

* Obtained through the courtesy of Dr. H. E. Morton, University of Pennsylvania, School of Medicine

of human ascitic fluid to 40 per cent of the final volume is adequate to support the growth of all isolates.

The swabs remained in the tubes of media which were incubated at 37° C. for 24 hours. Swabs were removed after pressing against the sides of the tubes. One-tenth ml. of each culture was transferred to PPLO agar (Difco) enriched with either human ascitic fluid or normal rabbit serum to a final volume of 25 per cent. Plates were streaked by means of bent glass rods. The original cultures were again subcultured after an additional 24 hours incubation. The trypticase soy broth usually showed evidence of bacterial growth at the end of 24 hours incubation and was subcultured for further identification.

Sera were obtained at least twice during observation and are being investigated for various antibodies. All patients were Frei tested and only negative reactors were included in the study. Cardiolipin microflocculation tests for syphilis were negative.

All the organisms isolated were studied for their susceptibility to antibiotics by a standard disc procedure.[3] The susceptibility of the PPLO was determined by an agar plate method. Table 1 demonstrates the antibiotic sensitivity of 5 PPLO strains and illustrates their marked susceptibility to terramycin and complete resistance to penicillin. This is in close agreement with other investigators.[4, 5] Table 2 tabulates the other organisms isolated and Tables 3 and 4 indicate their susceptibility to antibiotics.

TABLE 2

Predominating Organisms for Each Case

Organism	*Number of Patients*
Staphylococcus albus	56
Staphylococcus aureus	20
Diphtheroids	5
Escherichia coli	2
Streptococcus faecalis	1
	84

TABLE 3

Type and Number of Isolations

Organism Isolated	*Number of Isolations*	*Per cent of Total*
S. albus	76	39.4
S. aureus	53	27.5
Diphtheroids	36	18.7
E. coli	9	4.6
"L" forms	9	4.6
S. faecalis	6	3.1
Proteus sp.	3	1.5
Pseudomonas aeruginosa	1	0.6
	193	100.0

Space does not permit a complete discussion of the various types of media studied for the isolation and maintenance of the PPLO. It soon became evident that freshly isolated strains were difficult to maintain, if at all, in the laboratory. Best results were obtained using a soft agar medium known as cystine trypticase agar (BBL) to which yeast extract (Difco) was added.[6] Human ascitic fluid (25 per cent) or rabbit serum (25 per cent) was added for enrichment. After inoculation and 3–5 days incubation at 37° C. a floccular

TABLE 4

Bacterial Susceptibility to Antibiotics (Disc) *

Organisms	*Number*	*Penicillin*	*Streptomycin*	*Aureomycin*	*Chloramphenicol*	*Terramycin*
S. albus	40	S	S	S	S	S
	25	R	S	S	S	S
	11	R	R	R	R	R
S. aureus	38	R	S	S	S	S
	10	R	R	R	S	R
	5	R	R	R	R	R
E. coli	6	R	S	S	S	S
	3	R	R	R	R	R
S. faecalis	6	R	R	R	S	S
Proteus sp.	3	R	R	R	R	R
P. aeruginosa	1	R	R	R	R	R

* Method of Eisenberg and Wagner (*Am. J. M. Sc.*, June, 1952)

growth was visible. We have kept stock cultures for a month at 20° C. Recently a PPLO serum fraction has been studied by Morton and his co-workers [7] which is required for growth by the PPLO. We have used the Difco product with inconstant results.

PPLO were identified by examination of the plates under low-power magnification after staining by the Dienes [8, 9] technic. Transfer from agar was accomplished by cutting out a block of agar approximately 1 x 1 cm. and placing it in 2 ml. of 2 per cent Bacto-proteose peptone No. 3. The block was ground with a sterile glass rod and the agar particles allowed to settle. About 0.05–0.1 ml. of the supernate was streaked on a plate.

In 28 cases, urethral scrapings were obtained with a sterile platinum loop and the material stained for inclusion bodies. Specimens from 15 cases were inoculated into embryonated eggs, suckling mice, and guinea pigs. Both of these studies were not revealing.

Our control group of patients consisted of 20 young, healthy men without any past or present evidence of urinary tract disease. Specimens were obtained following irrigation of the urethra with sterile saline and also after prostatic massage. *Micrococcus tetragenus* was isolated from the urethra in 2 cases and *Staphylococcus albus* in 3 cases. No PPLO were isolated.

Every second patient was given aureomycin and every third patient, terramycin. This gave 3 groups of 28 patients. The therapy control group of 28 men were treated supportively without the aid of urinary antiseptics. Antibiotics were administered regardless of the bacteria isolated and their susceptibility. A course of therapy was 250 mgm. of the antibiotic every 6 hours for 7 days. At the end of this time, the patient was re-examined and if symptoms persisted or a discharge was present a second course of therapy was given. Up to 4 courses of therapy were given before stopping the use of the drug. A patient was considered "cured" when he was (1) completely asymptomatic and (2) no discharge was present. In most cases the discharge would disappear first and symptoms would persist from days to weeks later. A relapse was defined as a return of symptoms with or without a discharge. All relapses were treated with the antibiotic used initially and a clinical response usually effected within a short period of time.

Table 5 indicates the distribution of the patients studied as to age, race, and diagnosis. Approximately 64 per cent of

TABLE 5

Distribution of Patients and Diagnosis

Number of Patients	*Age*	*White*	*Negro*	*Urethritis*	*Prostatitis*	*Both*
22	17–20	16	6	18	1	3
16	21–22	10	6	10	0	6
16	23–24	12	4	8	2	6
9	25–26	6	3	7	1	1
4	26–27	2	2	2	0	2
12	28–35	9	3	5	3	4
5	35–	3	2	1	2	2
84		58 (69.1 per cent)	26 (30.9 per cent)	51	9	24

the cases were in men between the ages of 17 and 24. By far, urethritis was the most outstanding clinical picture; however, 11 per cent of the cases had signs and symptoms of a primary nonspecific prostatitis. In 29 per cent, urethritis and prostatitis were present in equally severe form.

At one time it was believed that nonspecific urethitis was due to inadequately treated gonorrhea. That this does not appear to be true in shown by Table 6. An additional 26 per cent (Table 7) had received antibiotic therapy prior to being seen in our clinic. This gave a total of 58 per cent who had received antimicrobial agents for acute urethritis, gonorrheal or nonspecific.

The L organisms were never recovered as a pure culture and Table 8 shows the organisms associated with their isolation.

TABLE 6

Patients with Previous Gonorrhea

Age	*White*	*Negro*	*Total*
17–20	6	4	10
21–22	2	4	6
23–24	5	1	6
25–26	3	0	3
26–27	1	0	1
28–35	0	0	0
35–	0	1	1
	17	10	27

(32.1 per cent of all patients)

TABLE 7

Previous Antibiotic Therapy for Nonspecific Urethritis

Weeks Prior to Onset	*Penicillin*	*Aureomycin*	*Questionable*
0–1	3	0	0
1–2	2	1	0
2–3	3	0	1
3–4	8	3	1
	16	4	2

Total 22, 26.2 per cent of patients

TABLE 8

Organisms Associated with "L" Form Isolation

Diagnosis	*Organisms*
Urethritis	*S. albus*
Urethritis	*S. albus, E. coli*
Urethritis	*S. albus, S. aureus*
Urethritis	*S. albus*
Urethritis	*S. albus*
Prostatitis	Diphtheroid, *S. aureus*
Ureth.-Pros.	*S. faecalis*
Ureth.-Pros.	Proteus sp.
Ureth.-Pros.	*E. coli*

Finlay and Wilcox[10, 11] and others,[2] have also noted the parallel isolation of L organisms with staphylococcus. All of our patients came from the 58 per cent group and had received antibiotic therapy, penicillin, or aureomycin, from 3 weeks to 2 months before L forms were isolated. While we were able to induce L forms in certain Gram-negative bacteria after exposure to penicillin which were morphologically and tinctorially indistinguishable from our control PPLO strains, this effect could not be reproduced with aureomycin or terramycin.

Included in our study were 4 cases of Reiter's disease with acute urethritis

TABLE 9

Reiter's Syndrome with Acute Urethritis

Patient	*Age*	*Duration of Disease*	*Organism*
1	34	6 months	*S. albus*
2	21	1 month	*Hem. S. aureus*
3	23	3 weeks	Diphtheroid
4	26	1 month	*E. coli*

(Table 9). Repeated attempts to isolate PPLO from the conjunctival and urethral exudates were not successful. One patient had a severe iridocyclitis and fluid from the anterior chamber proved to be sterile. These patients responded clinically after 1–4 weeks of terramycin therapy. Approximately 4–6 weeks following therapy, 2 patients relapsed and once again responded to terramycin.

In a disease so complex as nonspecific urethritis, there are many dangers associated with the evaluation of therapeutic agents. Admittedly, this syndrome may disappear spontaneously and is often made worse by certain mental states. While our series of patients might be considered small, adequate controls and rigid clinical criteria appear to have rendered the results significant. The only valid method to assure comparability of results in the 3 groups of patients was the total number of symptomatic relapses within a definite time period. Table 10 shows that the control group which received supportive therapy only (placebo and aspirin) presented a total of 20 relapses in 6 months. The heading "average number of relapses per 6 months" represents the average number of times patients rendered symptomatically well returned to the clinic with signs and symptoms indicating relapse. The aureomycin group appeared to have an earlier clinical response; however, the total relapses were close to the control. Terramycin induced the most striking changes by effecting clinical response early and more completely, plus a sharp and statistically significant reduction in the total relapses (Table 11).

TABLE 10

Supportive Therapy (Control)

Number of Patients	*Clinical Response (Weeks)*	*Average Number Relapses in 6 Months*
3	1	4
2	2	3
5	3	5
8	4	3
10	None	5
		20

TABLE 11

Aureomycin

Number of Patients	*Clinical Response (Weeks)*	*Average Number Relapses in 6 Months*
6	1	2
8	2	3
5	3	5
6	4	1
3	None	4
		17
	Terramycin	
12	1	2
10	2	1
6	3	1
..	4	..
..	None	..
		4

Apparently the clinical response bears no relationship to the organisms isolated initially. In the terramycin group about 5 per cent of all the isolates were resistant to the drug. Those patients who relapsed sometimes presented organisms which were sensitive to the antibiotic, thus tending to cast doubt on the value of the isolation as an etiologic agent. PPLO were never isolated in the relapse

phase. Attempts to demonstrate inclusion bodies by special stains and passage of material in animals for virus isolation in relapse phase were not successful.

DISCUSSION

Findlay and Wilcox [10] studied 12 patients with nongonorrheal urethritis. In 5 cases, PPLO were isolated along with *S. albus*. Chloramphenicol therapy resulted in clinical cure in 4 of these patients. Due to the potential hazard of chloramphenicol induced blood cyscrasias, the drug was not used in our series. English investigators,[18] among others, have raised the question of a virus etiology and have reported the presence of inclusion bodies in urethral scrapings. In a study of 50 patients with nonspecific urethritis, Findlay and Wilcox [11] demonstrated these inclusion bodies in 42 patients. They also point out that the organisms grown out from urethral culture "bore no relation either to the severity of the condition or the clinical outcome." Favorable response was obtained with terramycin in all but 4 of the 50 cases.

Ferguson and co-workers [12] of the Public Health Service studied 963 patients with nonspecific urethritis and have used urethral instillations of a 2.5 per cent solution of terramycin. Over 90 per cent of these patients have responded to therapy. In 72 patients, the flora was studied and over 90 per cent of the organisms isolated were *S. albus*, diphtheroids and *S. aureus*. Inclusion bodies and PPLO were not demonstrated by these workers.

Our study confirms the previous findings. We were unable to demonstrate an agent or agents which could be considered as etiologic in the light of present knowledge. While human strains of PPLO may be found in an unpredictable number of cases, they cannot be implicated as causal agents at this time.[20] Several important questions remain to be answered: (1) What is the relationship between PPLO and L form variants of bacteria? (2) Do the PPLO represent permanently altered bacteria incapable of reversion to their usual morphology? (3) Are the laboratory methods of isolation and identification sufficiently established to allow comparison of results between various laboratories? (4) Have the widespread use of penicillin and the broad spectrum antibiotics contributed to the apparent increase in the frequency of isolation from various types of human material?

Dienes and Weinberger [13] have recently summarized the problems associated with the possible relationship of human PPLO to L forms. These authors consider it difficult to believe that the similarities between the L type cultures and the PPLO on many points are purely accidental. On a morphological basis it is often impossible to distinguish the induced L form from a PPLO. The almost constant parallel isolation of staphylococci with PPLO in our study and in others raises the question as to whether the PPLO might not be L variants of the staphylococcus.[21]

Morton, *et al.*[14, 19] have attempted to establish simple, reproducible procedures for the isolation of the PPLO. While their studies have advanced our knowledge concerning these organisms, the criteria for PPLO identification needs further investigation. Until exact biochemical and serological methods are available, the troublesome discrepancies between laboratories will probably continue to exist.

The clinical use of penicillin over the years has produced changing patterns of bacterial resistance. In our laboratory, 65–70 per cent of the *S. aureus* isolated from human material are resistant to penicillin, while in 1945 only 20–30 per cent were resistant. Bacteria studied by Dienes and Weinberger [15] could be induced to form L types by the action of penicillin. The *in vivo* demonstration of this phenomenon has not been con-

clusively demonstrated and is therefore not ruled out.

There did not appear to be a relationship between the type of organisms isolated and the ultimate effect of therapy. Various workers [16] have demonstrated *in vitro* the simultaneous development of resistance to terramycin when organisms were made resistant to aureomycin. This would indicate clinical failure with one means failure with the other, which is not true. The efficacy of terramycin noted by several clinics [11, 12] in nonspecific urethritis would suggest that the drug acts on susceptible agents which are relatively resistant to aureomycin. According to Welch [17] terramycin consistently demonstrated concentrations in the urine 30–50 per cent greater than with other antibiotics studied, when compared after equal doses. This fact alone fails to answer the effectiveness of terramycin so that the exact mechanism of its action in this disease must remain speculative at this time.

SUMMARY

1. Nonspecific urethritis and prostatitis could not be related causally to any particular microbial agent.

2. The role of the PPLO or L forms in the etiology of these syndromes remains obscure. These agents were isolated from patients who had received antibiotic therapy.

3. Of the antibiotics studied, terramycin proved to be the most effective as determined by the average number of relapses during a specific time interval.

4. The mechanism of action of terramycin in these cases is not clear.

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The epidemiologist—like the pathologist—has convincing arguments to offer against the indiscriminate dosing with antibiotics for minor illnesses, diagnosed or undiagnosed. Revealed here are some of the end effects upon public health to be anticipated from the practice.

Observations on the Epidemiological Spread of Antibiotic-Resistant Staphylococci, with Measurements of the Changes in Sensitivity to Penicillin and Aureomycin*†

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STAPHYLOCOCCI which are not inhibited by the concentrations of penicillin achieved in the body fluids by customary methods of therapy, so-called penicillin-resistant staphylococci, have been obtained from hospitalized patients, from patients attending outpatient clinics, and from healthy subjects in the general population. It has been shown by various investigators that the percentage of penicillin-resistant strains recoverable from patients in hospitals has increased from year to year during the period in which penicillin has been available. The appearance of resistant strains has sometimes followed treatment with penicillin, but often, perhaps more often, has been due to the spread of resistant strains to hospitalized patients from other patients and from attendants. Since recent reports have indicated that 37–70 per cent of hospitalized patients carry penicillin-resistant staphylococci,[1-6] it has seemed important to us to determine what happens to these strains when the patient returns to his home.

Although aureomycin has been in general use for only three years, there is evidence that resistant strains of staphylococci are appearing in hospitalized patients.[3, 5, 7, 8] Information in regard to the presence of aureomycin-resistant strains in the general population is not available, although there are indications that infections caused by strains of staphylococci resistant to aureomycin are becoming more prevalent. In order to obtain more information on the circumstances under which antibiotic-resistant staphylococci spread from person to person, we have investigated the sensitivity to aureomycin as well as to penicillin of the strains of staphylococci present in the noses and

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throats of patients discharged from a contagious disease hospital and of their household contacts. The present paper is a report of these studies.

METHOD

Pharyngeal cultures were obtained by moistening a sterile applicator in tryptose-phosphate broth, swabbing both sides of the pharynx (and tonsils, if present) with the applicator and placing it in tryptose-phosphate broth for transmission to the laboratory. Nasal cultures were taken similarly by the use of one applicator for both nares. In the first part of the study, cultures were taken from the pharynx only. Later a culture was taken from both the nose and the pharnyx on each patient and family contact studied. In the laboratory, the applicator was streaked across an agar plate containing 2 per cent sheep blood. In the case of hospital personnel and inpatients, the plates were streaked within an hour of the time of swabbing. In the case of patients at home and their household contacts, this interval varied from one to four hours.

The presence and characteristics of the colonies of staphylococci on the blood agar plates were noted. A single colony was picked for study from each plate unless the colonial characteristics differed, in which case a specimen of each type of colony was subcultured.

Minimal inhibitory concentrations of penicillin and aureomycin * (and in some cases of streptomycin, terramycin, or chloramphenicol) or both, were performed by serial twofold dilutions in tubes of tryptose-phosphate broth. The lowest concentration showing absence of growth on inspection after 18 hours incubation was taken as the minimal inhibitory concentration (also referred to as the "sensitivity" of the strain to that particular antibiotic).

* The aureomycin used in this study was supplied by the Lederle Laboratories Division, American Cyanamid Company.

The coagulase test was done by the method of Fisk.[9] Hemolysis was determined from the blood-agar plate. Subcultures on plain tryptose-phosphate agar plates were used to observe pigment production.

Staphylococcus bacteriophages were obtained through the courtesy of Dr. G. B. Leyton of Winnepeg, Manitoba, Canada.

Routine nasopharyngeal cultures were taken on patients during hospitalization and at the time of discharge. Follow-up cultures were taken at intervals of approximately two weeks for at least eight weeks after the patient returned home, and in some instances for as long as 21 weeks. Cultures were also made from the noses and throats of hospital personnel, including physicians, nurses, and orderlies. A record was made of the occurrence of respiratory infections in the patients at home and the household contacts as well as therapy with antibiotics. All of the staphylococci obtained on culture have been included in the tabulations irrespective of their ability to produce pigment or hemolyze blood and regardless of whether they were coagulase positive or negative. A study of the occurrence and transmission of antibiotic-resistant strains among the patients during hospitalization will be reported elsewhere.[10]

RESULTS

Initial and adequate follow-up cultures were made on 54 patients who carried staphylococci in the nose or pharynx, or both, at some time during their hospital stay and on their 209 household contacts. Household contacts varied from one to nine and averaged 3.8 per patient. From Figure 1, it can be seen that 74 per cent of the cultures taken from the patients at the time of discharge from the hospital contained staphylococci. This percentage decreased irregularly during the weeks after the patients left the hospital. From

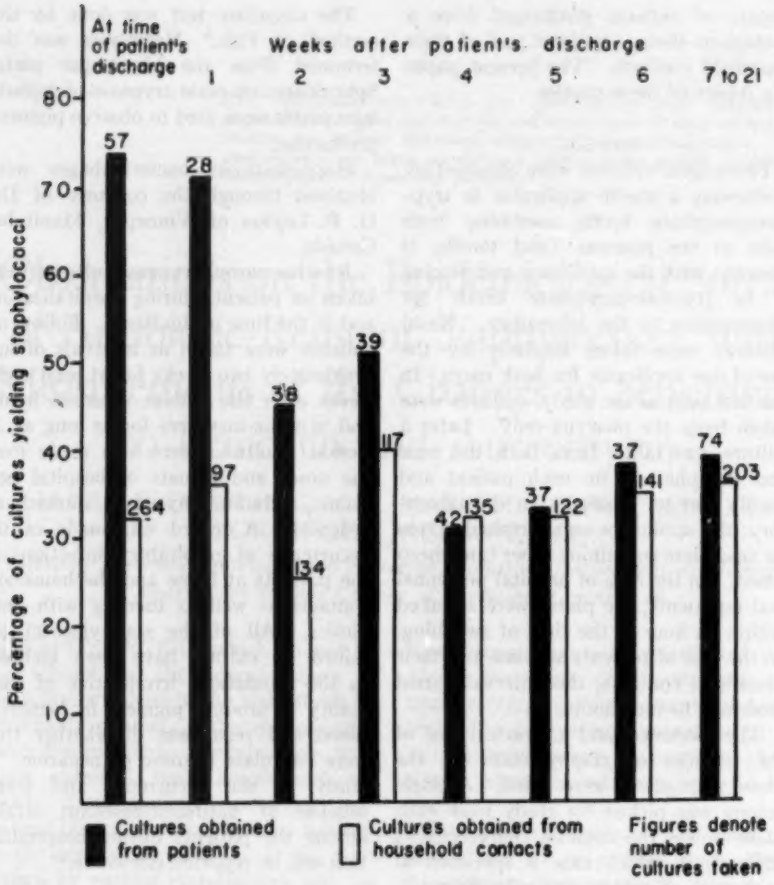

FIGURE 1—Percentage of nose and throat cultures from patients and family contacts which were positive for staphylococci

the fourth week on, it remained between 31 per cent and 39 per cent. On the other hand, in the case of household contacts, the percentage of cultures taken which contained staphylococci remained relatively constant, between 25 and 40 per cent. Altogether 1,213 cultures were taken from the noses or the throats of household contacts of which 404, or 33 per cent, were positive for staphylococci. From the fourth week after discharge, 191 cultures were taken from patients of which 69, or 36 per cent, were positive, and 601 cultures were taken from the contacts of which 204, or 34 per cent, were positive. From these data, it is apparent that staphylococci were present in the nose or throat of a larger proportion of patients for the first three weeks after discharge from the hospital and that after that period there was no significant dif-

TABLE 1

Concentrations of Penicillin Required To Inhibit Strains of Staphylococci Obtained from Noses and Throats of Patients and Household Contacts

Group Studied	Time at Which Cultures Were Taken	Number of Strains Studied	Percentage of Strains Requiring Various Concentrations of Penicillin to Inhibit Growth			
			<0.1 Unit/ml.	0.1–0.9 Unit/ml.	1.0–9.9 Unit/ml.	10 Unit/ml. and Over
Hospital Personnel	At intervals during study	47	9	6	34	51
Patients	At discharge from hospital	42	12	0	19	69
	Weeks after discharge:					
	1–2	37	11	13	13	63
	3–4	33	36	6	9	49
	5–6	27	56	4	7	33
	7–21	29	62	7	3	28
Household Contacts	At time of patient's discharge from hospital	84	65	3	2	30
	Weeks after discharge:					
	1–2	68	62	6	4	28
	3–4	89	67	5	10	18
	5–6	91	59	7	3	31
	7–21	74	71	4	5	19
	All times	406	65	5	5	25

ference in the number of patients and in the number of contacts from whom staphylococci were obtained.

Table 1 shows the percentage of strains of staphylococci recovered from the nose or throat which were inhibited by various concentrations of penicillin in relation to the time when the cultures were taken. At the time the patients were discharged from the hospital, 69 per cent of the staphylococci required for inhibition 10 units of penicillin per ml. or more and 88 per cent required for inhibition one unit or more of penicillin. The remaining 12 per cent were inhibited by less than one unit per ml. For purposes of comparison, the penicillin sensitivity of the staphylococci recovered from the noses and throats of the hospital personnel is shown. Fifty-one per cent of these strains required for inhibition 10 units or more per ml. of penicillin and 85 per cent, one unit or more. The percentage of resistant strains recovered from the patients in the study decreased progressively through the sixth week after the patient left the hospital (regardless of whether one unit or 10 units was taken as the criterion of resistance).

If all the strains cultured after the patient's fourth week at home were to be grouped together, the percentage inhibited by 10 units or more would be 30 per cent, and by one unit or more, 36 per cent. This should be compared with the sensitivity to penicillin of the staphylococci obtained from the household contacts. In this group the proportion of resistant strains remained essentially the same throughout the period of the study. If all of the strains were to be added together regardless of when they were obtained, the proportion requiring 10 units or more of penicillin per ml. for inhibition would be 25 per cent and the proportion requiring one unit or more per ml., 30 per cent. If only the strains isolated from the contacts after the patient's fourth week at home were to be included in the calculation, the percentages would be exactly the same, 25 per cent and 30 per cent, respectively. Accordingly, the propor-

tion of resistant staphylococci obtained from patients after the fourth week was only slightly higher than the proportion of resistant strains obtained from the contacts during that same period or during the entire period of the study.

Similar data for aureomycin sensitivity are shown in Table 2. At the time of the patient's discharge, 78 per cent of staphylococci required 10 μg. or more of aureomycin per ml. for inhibition. This may be compared with the 64 per cent of staphylococci obtained from hospital personnel which required the same concentrations of aureomycin per ml. for inhibition. The proportion of strains from patients which required these high concentrations for inhibition gradually fell until after the sixth week it reached 14 per cent. Among the household contacts, the proportion of strains which required 10 or more μg. per ml. for inhibition fluctuated between 2 per cent and 12 per cent. For the entire period of observation this proportion was 7 per cent.

The proportion of strains resistant to one or more μg per ml. of aureomycin followed the same pattern, although it was quantitatively different. At the time the patients left the hospital, 90 per cent of the strains required these concentrations of aureomycin for inhibition. The proportion dropped slightly but remained relatively stationary from the third week on, varying between 59 per cent and 70 per cent. The proportion of strains among household contacts which required one or more μg. per ml. of aureomycin for inhibition varied between 34 per cent and 66 per cent. If all the strains obtained from household contacts during the period of the study were to be grouped together, 51 per cent of them would be inhibited by this amount of aureomycin. It appears, therefore, that the proportion of patients' strains which were highly resistant to aureomycin dropped more slowly after the patient left the hospital than in the case of strains which were highly resistant to penicillin, but that eventually the proportion was slightly lower than in the case of penicillin. On

TABLE 2

Concentrations of Aureomycin Required To Inhibit Strains of Staphylococci Obtained from Noses and Throats of Patients and Household Contacts

Group Studied	Time at Which Cultures Were Made	Number of Strains Studied	Percentage of Strains Requiring Various Concentrations of Aureomycin to Inhibit Growth			
			<0.1 μg./ml.	0.1-0.9 μg./ml.	1.0-9.9 μg./ml.	10 μg./ml.
Hospital Personnel	At intervals during study	47	0	8	28	64
Patients	At discharge from hospital	42	0	10	12	78
	Weeks after discharge:					
	1-2	37	0	13	22	65
	3-4	33	3	36	28	36
	5-6	27	0	30	37	33
	7-21	29	0	41	45	14
Household Contacts	At time of patient's discharge from hospital	85	4	47	46	4
	Weeks after discharge:					
	1-2	68	3	63	24	10
	3-4	90	6	43	43	8
	5-6	88	0	34	64	2
	7-21	73	1	47	40	12
	All times	404	3	46	44	7

TABLE 3

Fate of Strains of Staphylococci in the Nose and Throat of Patients and Household Contacts

Fate of Strains of Staphylococci	*Number*	*Per cent*
Number of households investigated	54	100
Strain transferred from patient to contact	7	13
Strain transferred from contact to patient	10	19
Patient's and contact's strains grew independently without transfer	5	9
Cultures of patient's nose and throat became negative for staphylococci	24	44
Patient acquired strain unrelated to strains carried by household contacts	3	6
Fate of strains could not be determined	5	9

the other hand, the proportion of strains which were moderately resistant to aureomycin dropped only slightly and remained much higher than the proportion of strains which were moderately resistant to penicillin. Regardless of which criterion was used for the determination of resistance, the proportion of aureomycin-resistant strains in contacts was slightly lower than in the case of patients. It should be added that wherever determinations of sensitivity to terramycin and chloramphenicol were carried out, the changes in the sensitivities of the various strains of staphylococcus to these antibiotics were found to parallel the changes in sensitivity to aureomycin. There was no relationship among the sensitivities of the strains to aureomycin, streptomycin, and penicillin.

The fate of the individual strains of staphylococci which were present in the nose or throat, or both, of patients or contacts is shown in Table 3. This was determined by bacteriophage typing, when the strains could be typed by this method, and by the sensitivity of the strains to penicillin, aureomycin, and streptomycin when the results were sufficiently clear-cut so that there was no question as to whether the observed strain was the same or a different one. In five of the 54 families studied, a definitive answer could not be obtained by either of these methods. Among the remaining families, the strain carried home from the hospital by the patient was transferred to a member of the household in seven instances. A strain which was present in a household contact before the patient left the hospital was later transferred to the nose or throat of the patient in 10 instances. In the case of five families, the patient retained his strain and the contacts retained theirs without any transfer. In the largest number of cases, 24, or 44 per cent, of the families, the strain carried home by the patient could not be cultured at a later date and was not replaced by another strain of staphylococcus. In three families, the strain which the patient carried home from the hospital could not be cultured at a later date and was replaced by another strain of staphylococcus which was not cultured from other members of the family at any time. The number of contacts in the household bore no relation to the transfer or nontransfer of strains from patient to contacts, or vice versa.

Transfer of a strain from patient to household contact, or vice versa, occurred more frequently when the staphylococcus had its site of origin in the throat rather than in the nose. Among the patients and contacts on whom both nose and throat cultures were taken in every instance, staphylococci were cultured from the throat in 27 instances. In eight, 30 per cent, of these cases the strain was transferred either from patient to contact or from contact to patient. On the other hand, staphylococci were cultured from the nose in 57 instances, in six of which, 11 per cent, the strain was transferred. This difference in frequency of transmis-

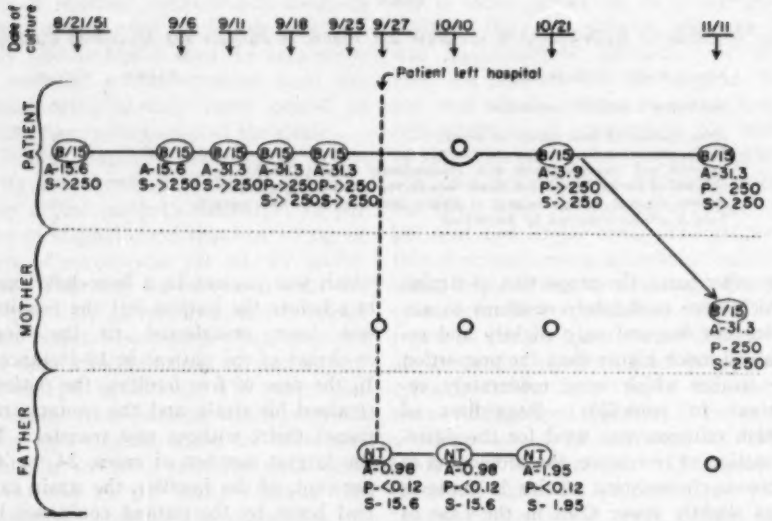

FIGURE 2—Spread of an antibiotic-resistant staphylococcus from patient to a family contact Numbers within circles indicate phage type. Types 8 and 15 correspond to Phage types 8406 and 8404 according to strains obtained from Dr. G. B. Leyton, director of laboratory services, Department of Health and Public Welfare, Winnipeg, Manitoba, Canada

NT = no phage type obtained
O = no staphylococci obtained on culture
A = number of micrograms of aureomycin per ml. required for inhibition of growth
S = number of micrograms of streptomycin per ml. required for inhibition of growth
P = number of units of penicillin per ml. required for inhibition of growth

sion has a 10 per cent probability of occurrence by chance, according to the chi square test.

Figure 2 shows the spread from a patient to a family contact of a staphylococcus which was resistant to aureomycin, penicillin, and streptomycin. Each of five throat cultures taken during hospitalization yielded strains of staphylococcus which were of the same phage type and which required for inhibition 15.6 to 31.3 μg. of aureomycin per ml., and were not inhibited by 250 units of penicillin or 250 μg. of streptomycin per ml. A staphylococcus could not be grown from the first culture of the patient's throat after discharge from the hospital but the previous strain reappeared on the second and third cultures. This last culture was taken eight weeks after the patient left the hospital. On that same day, staphylococci were cultured from the mother's throat for the first time since the day of the patient's discharge, and this organism was found to be identical with the one which had been repeatedly cultured from the patient's throat. A different strain of staphylococcus which could not be typed with the bacteriophage strains available was cultured several times from the father's pharynx.

DISCUSSION

Staphylococci which are resistant to antibiotics may be acquired under three different sets of circumstances:

1. The resistant strain may appear

while the patient is under treatment with the antibiotic in question or a closely related antibiotic.

2. The resistant strain may be acquired while the patient is in the hospital even though antibiotics are not being administered. (Presumably the resistant strains are transferred from other patients who have been given antibiotics either directly or, more often, by means of hospital personnel acting as carriers.)

3. The resistant strain may be acquired in the community from symptomless carriers.

If the spread of antibiotic-resistant strains of bacteria is to be controlled, the relative importance of these three mechanisms must be determined. The first two of these have been observed frequently. The third mechanism has not been investigated in detail, although it can be inferred from the fact that when samples of the general population have been studied, up to 18 per cent of the carriers have been found to harbor penicillin-resistant staphylococci.[10-13] The observations reported in this paper demonstrate that staphylococci which are resistant to penicillin and aureomycin occur in larger numbers among patients for several weeks after their discharge from the hospital than in members of the population at large. Transfer of strains of staphylococci to one or more of the household contacts was found to take place from the nose or throat of 13 per cent of the patients observed. A significant increase in the carrier rate of resistant strains was not observed, however, among household contacts after the arrival of patients in the households, nor among the patients subsequent to the seventh week after discharge, although the transfer of individual strains from patient to household contact was observed to occur, especially if the patient was a pharyngeal carrier. Presumably the addition to a household of a single person carrying a resistant strain of staphylococcus was not so great a hazard as the number of other contacts in the general population who were carrying organisms of similar resistance.

Since the number of antibiotic-resistant strains in a given segment of the population presumably increases with the number of individuals who have received antibiotic therapy, some means should be found to prevent the administration of antibiotics, without clear and sufficient indication, for a whole host of minor illnesses, diagnosed and undiagnosed. In addition, it would be profitable to explore technics of managing patients under treatment with antibiotics in order to prevent as much as possible the spread of resistant strains via hospital personnel to other patients.

SUMMARY

1. One hundred ninety-one cultures were taken from the noses and throats of 54 patients before and for eight to 21 weeks after discharge from a contagious disease hospital and 1,213 cultures from their 209 household contacts. Cultures were also taken from the hospital personnel at various times during the course of the study. The staphylococci present were studied with respect to their biological characteristics, their sensitivity to penicillin and aureomycin (and sometimes also to other antibiotics), and were typed by the bacteriophage method wherever possible.

2. Staphylococci were present in 74 per cent of the cultures taken from the patient at discharge from the hospital. This percentage decreased until after the fourth week it remained at approximately 36 per cent. Staphylococci were present in 33 per cent of the household contacts. This percentage did not vary significantly from week to week.

3. Among the staphylococci cultured, the percentages requiring for inhibition one or more units per ml. of penicillin were: 85 per cent in the case of hospital personnel, 88 per cent in the case of

patients at the time of discharge from the hospital, 36 per cent in the case of patients after the fourth week following discharge, and 30 per cent in the case of household contacts. The percentage of staphylococci requiring for inhibition 10 or more μg. per ml. of aureomycin were: 64 per cent in the case of hospital personnel, 78 per cent in the case of patients at the time of discharge from the hospital, 14 per cent in the case of patients seven weeks after discharge and later, and 7 per cent in the case of household contacts.

4. In seven of 54 families an individual strain was observed to have been transferred from the patient to a household contact, and in 10 families from a household contact to the patient. There was some indication that a strain was more likely to be transferred when it was carried in the throat than when it was carried in the nose.

5. It is postulated that antibiotic-resistant staphylococci may appear in the nose or throat of a person as a result of (a) treatment of that person with the antibiotic in question, (b) transfer of a resistant strain in the hospital, (c) transfer of a resistant strain in the community; and that all of these methods of spread of antibiotic-resistant staphylococci are important.

ACKNOWLEDGMENT—We wish to thank Dr. Marvin Hirsch for clinical assistance, and Mrs. Gayle Pierzinski Hager and Miss Ann Rurka for technical assistance.

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This study was carried out at the request of the Standard Methods Committee of the American Public Health Association. It offers a suggestion for a uniform procedure.

Further Studies on New Milk-Free Media for the Standard Plate Count of Dairy Products*

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BUCHBINDER and associates,[1] reporting on studies completed in 1948, noted that satisfactory agar culture media for the Standard Methods plate count of milk and other dairy products could be prepared without skim milk. Two formulas were proposed. One contained Difco Laboratories ingredients as follows: tryptone 0.5 per cent, yeast extract 0.35 per cent, and glucose 0.1 per cent. The other contained Baltimore Biological Laboratory ingredients as follows: phytone 1.0 per cent, polypeptone, 0.5 per cent, and glucose 0.1 per cent. This report was followed by two studies carried out in a number of laboratories on new dehydrated milk-free agar media, including the two agars described above. One study was sponsored by the Committee on Applied Laboratory Methods of the International Association of Milk and Food Sanitarians (Pessin and Black) [2] and the other by the Subcommittee on Standard Methods for the Examination of Dairy Products of the American Public Health Association (Pessin and Robertson).[3] These two studies, among other things, confirmed the essential findings of the original report.

It had been noted in the work by Buchbinder, *et al.*, that the productivity of a given medium, in general, is related to the quantity of the ingredients used. The intent was to adjust the quantity of the yeast extract used according to the formula given above, so as to make its productivity more nearly approach that of the present Difco Standard Methods Tryptone Glucose Beef Extract (Milk) (T.G.E.M.) medium which it will replace. A second purpose of the study was to assess a new milk-free dehydrated medium prepared by the Baltimore Biological Laboratory.

The tests compared Difco Standard Methods T.G.E.M. agar medium in both dehydrated and laboratory prepared form with both pasteurized and raw milk against: (1) An experimental milk-free yeast extract medium prepared by Difco Laboratories in the dehydrated form in batches with varying concentrations of yeast extract, and (2) similar batches of the same medium prepared in this laboratory from Difco ingredients, and (3) two batches of an

* Presented before the Subcommittee on Standard Methods for the Examination of Dairy Products and the Laboratory Section of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 22, 1952.

TABLE 1

Comparison of Experimental Dehydrated Yeast Extract Agar Medium (Difco Laboratories) with Standard Methods Agar Medium (T.G.E.M.)

		T.G.E.M. Agar (Difco Laboratories, Dehydrated)				T.G.E.M. Agar (Laboratory Prepared from Difco Ingredients)			
		Pasteurized Milk		Raw Milk		Pasteurized Milk		Raw Milk	
	Per cent Yeast Extract	No. Samples	Per cent Standard Medium	No. Samples	Per cent Standard Medium	No. Samples	Per cent Standard Medium	No. Samples	Per cent Standard Medium
Test Medium Difco yeast extract (dehydrated)	0.25	40	103.5	45	102.6	40	115.5†	45	96.0
	0.30	40	109.6	44	103.2	60	118.4†	45	97.0
	0.35	40	111.6*	45	104.2	40	124.5†	45	97.5
Test Medium Difco yeast extract (laboratory prepared)	0.20	40	72.0†	45	95.0	40	80.4†	44	88.7
	0.25	40	85.1*	45	95.0	79	91.6†	44	90.1*
	0.30	51	90.1*	45	99.5	40	102.9	54	92.2*
	0.35	40	97.7	45	96.5	68	104.6	44	90.5

* Significantly different from 100 per cent, probability between 0.05 and 0.01
† Significantly different from 100 per cent, probability less than 0.01

experimental dehydrated milk-protein hydrolysate medium prepared by the Baltimore Biological Laboratories. The experimental dehydrated yeast extract medium consisted of four samples each consisting of 0.5 per cent tryptone, 0.1 per cent glucose, and 1.5 per cent agar, with one containing 0.35 per cent yeast extract, another 0.3 per cent yeast extract, the third 0.25 per cent yeast extract, and the fourth 0.20 per cent yeast extract. Likewise, batches of the same medium with four different yeast extract concentrations in the same range, which were prepared in this laboratory in the undehydrated state, were studied.

The findings with the Difco dehydrated yeast extract medium are presented in Table 1. The data were analyzed by the technic described by Buchbinder, *et al.*[1] The most significant comparison in the table concerns the three dehydrated yeast extract media against the dehydrated Standard Methods T.G.E.M. medium. It is seen that, with pasteurized milk, the three yeast media give results, in regard to difference in productivity, which agree with the previous finding of Buchbinder, *et al.*, that productivity is apparently controllable by adjustment of the quantity of ingredients. The medium containing 0.25 per cent yeast extract, is least productive with pasteurized milk, and approximates the productivity of the present Standard Methods medium. No definite statement can be made about raw milk from the data at hand. It is suggested, nevertheless, that a medium containing this quantity of yeast extract might be the preferred one for the new Difco prepared Standard Medium.

It is observed that the laboratory prepared T.G.E.M. medium has the same relationship to the dehydrated yeast media with both pasteurized and raw milk, as does the same product in the dehydrated form, except that in the case of the laboratory prepared product the differences are greater with pasteurized milk.

When the two types of T.G.E.M. medium are compared with the laboratory prepared yeast extract medium, the same stepwise decline in productivity for pasteurized milk with decrease in yeast concentration is found as for the dehydrated product. Again, it is doubtful

if a similar variation occurs with raw milk. Since the percentages in the lower half of the table are less than the corresponding percentages in the upper half and since the samples of milk are essentially the same, it is clear that, for both T.G.E.M. media and both types of milk, the laboratory yeast extract medium is less productive than the dehydrated yeast extract medium.

medium, the percentages in the left half of both Tables 1 and 2 can be compared with the corresponding right half in order to contrast the productivity of these two media. It is observed in the case of pasteurized milk that dehydrated T.G.E.M. is more productive and in the case of raw milk the laboratory prepared T.G.E.M. is more productive.

The fact of such a difference between

TABLE 2

Comparison of Experimental Dehydrated Milk-Protein Hydrolysate Agar Medium (Baltimore Biological Laboratory) with Standard Methods Agar Medium (T.G.E.M.)

	T.G.E.M. Agar (Difco, Dehydrated)				*T.G.E.M. Agar (Laboratory Prepared from Difco Ingredients)*			
	Pasteurized Milk		*Raw Milk*		*Pasteurized Milk*		*Raw Milk*	
	No. Samples	*Per cent Standard Medium* *	*No. Samples*	*Per cent Standard Medium* *	*No. Samples*	*Per cent Standard Medium* *	*No. Samples*	*Per cent Standard Medium* *
BBL Experimental Lot No. 124X	40	96.1	44	100.5	60	101.2	45	93.1
BBL Experimental Lot No. 125X	40	95.5	44	98.5	51	104.6	50	93.8

* Neither of the percentages is significantly different from 100

The reason that the yeast extract dehydrated medium appears to be more sensitive, that is, more productive, for pasteurized milk than for raw milk may be due to the fact that pasteurized milk, unlike raw milk, contains bacteria which are injured but not destroyed during pasteurization and which grow in the presence of accessory food substances supplied by the yeast.

The findings with the two batches of experimental dehydrated milk-protein hydrolysate medium prepared by the Baltimore Biological Laboratories are given in Table 2. They are both found not to vary significantly from either the dehydrated or laboratory prepared T.G.E.M.

Since the samples of milk used were essentially the same for both laboratory prepared and dehydrated T.G.E.M. the laboratory prepared and the dehydrated media has been noted above to be true also for similarly prepared yeast extract media. Regardless of which method of preparation is closer to an ideal count, the necessity for more complete standardization of a standard medium is indicated. An obvious solution for this discrepancy would be to have all laboratories use dehydrated medium only.

SUMMARY AND CONCLUSIONS

1. A milk-free dehydrated medium prepared by Difco Laboratories containing yeast extract 0.25 per cent, tryptone, 0.5 per cent, glucose 0.1 per cent, and agar 1.5 per cent seems to approximate more closely the productivity of Standard Methods T.G.E.M. agar than does the same medium with greater concen-

trations of yeast extract. The concentration of yeast extract sems to be much more critical for bacteria in pasteurized milk than in raw milk. A possible explanation for this is given.

2. A new milk-free dehydrated medium prepared by the Baltimore Biological Laboratories containing milk-protein hydrolysate 0.9 per cent, glucose 0.1 per cent, and agar 1.5 per cent also seems to be an adequate substitute for T.G.E.M. agar.

3. It is suggested that, to secure uniformity of results in different milk control laboratories, Standard Methods media be used in the dehydrated form only.

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A Complete Public Health Structure

A Guide to Health Organization in the United States sets down the various forces and various levels of government that constitute the health structure of the country. At the base of the structure are private practitioners, voluntary agencies, and local government. State government is a second story setback, federal government, a third story setback. Nor are all health activities confined to state and local public health departments and the federal public health services. Many other agencies, such as labor departments, correctional, casework, and recreation agencies, carry on a variety of health services, some of them extensive, others minor.

The *Guide* is one of the last activities of the late Joseph W. Mountin, M.D., before his untimely death. He and his co-author, Evelyn Flook, have designed a pamphlet for use in orienting professional public health workers, visitors from other countries, and American students to the multiple systems of health service, and as a concise source of information for the general public. It is the second edition of the *Guide* which was first published in 1946. Gov. Ptg. Office, Washington 25, D. C.; 30¢.

Enterococci may be more useful as indicators of water pollution than the coliform organisms. The study reported upon here is the last of a long chain of efforts to perfect suitable test media for these indicators and proposes both a presumptive and a confirmatory medium.

A New Medium for the Detection of Enterococci in Water*

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THERE is a need for a test organism other than the coliform group for the detection of fecal contamination in foods, water, soil, and other materials. The coliforms have been employed for measuring pollution because these bacteria are supposedly indicative of sewage contamination and can be easily isolated and confirmed by a relatively simple bacteriological technic.

There are many instances in the examination of samples of materials suspected of sewage contamination where the coliform organisms, because of their ubiquity in nature and their ability to multiply outside the animal body, fail to measure sanitary quality. The coliform organisms do not always represent pollution because these organisms are found occasionally in uncontaminated soil and water and may be of nonfecal origin. They may persist in soil and water for long periods of time and may thus not indicate recent sewage pollution. Fecal strains of coliform bacteria cannot be distinguished from nonfecal strains.

Streptococci are used in a limited manner as indicators of pollution on the same basis as coliform organisms. They are present in feces, sewage, and contaminated water; they are not found in potable waters, virgin soils, and sites out of contact with animal and human life, and they do not multiply outside the animal body except in a rich nutrient menstruum.

With respect to the number of streptococci in feces and sewage, a review of literature reveals that while at times they may be almost as numerous as the coliform organisms, at other times they may be considerably less or absent. These variations are due in part, at least, to failure of the methods or media used for the measurements of their frequency.

Mallmann [1] reported that the streptococci were constant indicators of pollution and the number found in swimming pools was parallel to the amount of pollution as indicated by the number of bathers. In a later paper, Mallmann and Sypien [2] compared the coliform and streptococci indexes of samples taken five feet from the shore

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on a bathing beach. It was found that while the coliform indexes and total plate counts did not always respond to changes in the bathing load, the streptococci indexes did. The streptococci were not found at points free from the bathing pollution, while the coliform bacilli were. It was also reported that the streptococci disappeared overnight while the coliform index and the total count sometimes increased, although they were generally lower.

Ritter and Treece [3] isolated 79 strains of streptococci from swimming pools. Fifty-two or 65.8 per cent were classified as *Streptococcus faecalis*; these were confirmed by the Lancefield technic and were further classified as type D.

Winter and Sandholzer [4] confirmed the work of Mallmann and Sypien in that they reported that coliform organisms persisted for a great distance from the source of pollution in water but that streptococci did not. They reported that while streptococci were present in all samples of human and animal feces tested, these organisms were never found in virgin soils or in soils from wooded areas.

Mallmann and Litsky [5] using a dextrose azide broth as an enrichment medium could not isolate enterococci from soils which were not treated with sewage or animal manure. They also stated that other than the coliform organisms, the enterococci were the only organisms found in feces that could be used as indicators of fecal pollution. While the coliform organisms were found to persist in sewage treated soil, the enterococci were found to die out rapidly, but not as rapidly as virulent typhoid bacilli. It was also noted that the longevity of these three organisms in sewage treated soil was prolonged with an increase of the organic content of the soil.

In 1906 Prescott and Baker [6] reported that when *Escherichia coli* and streptococci were grown in mixed cultures, *E. coli* reached a maximum growth before the streptococci but were gradually displaced by the latter 20–60 hours after the start of the experiment. At this time on the streptococci predominated, and, on some occasions, the *E. coli* disappeared completely.

Since similar successions of growth occur in lactose broth, Mallmann and Gelpi [7] suggested the use of standard lactose enrichment broth for the detection of streptococci. After the usual coliform confirmation tests were made, the tubes were reincubated for 48 hours, centrifuged, and the sediment examined for streptococci by microscopical examination. Another method suggested by these authors was to allow the tubes to remain at normal temperature for 1–3 days after the initial incubation to permit sedimentation. It was reported that a heavy sediment in the bottom of the tube, similar in appearance to the deposition in a positive macroscopic agglutination test, was an indication of the presence of streptococci but it must be confirmed by microscopic examination.

In 1918 Weissenbach [8] was one of the first to describe a selective medium for enterococci. Sterile filtered ox bile was used for the inhibitory agent. Baggar [9] also used sterile ox bile with one per cent peptone to grow fecal streptococci. For confirmation he suggested a heat resistant test as recommended by Huston.[10]

Fleming [11] in 1932 reported that enterococci will grow in a concentration of 1–15,000 potassium tellurite which is inhibitory to coliform bacteria as well as other Gram-negative bacteria. Harold [12] in 1936 prepared a solid tellurite agar. Enterococci appeared as bluish-black colonies about a millimeter in diameter with a peripheral opalescence. In 1937 Harold [13] compared this medium to those used at that time and found that from a series of over 250 positive-MacConkey broth tubes, 13.9

per cent contained fecal streptococci by Huston's heating technic, 30.6 per cent by the direct tellurite method, and 44 per cent by the enrichment tellurite method.

Hartman [14] in 1937 was the first to use sodium azide to suppress the growth of Gram-negative bacteria while permitting the streptococci to grow. Since this discovery, many investigators have used this chemical in media for the isolation of fecal streptococci.

Mallmann [15] reported a medium containing sodium azide which was found useful in estimating the number of streptococci in feces as it was found to support the growth of these bacteria while inhibiting the coliform group. Hajna and Perry [16] published another selective streptococci medium which was almost a duplicate of the medium suggested by Mallmann,[15] but the former workers used an incubation temperature of 45° C. Growth and the production of acid in this medium were stated to be almost complete evidence of the presence of *S. faecalis*.

Winter and Sandholzer [17] in 1946 published a procedure for detecting the presence of enterococci. This method consists of a sodium azide presumptive broth and a penicillin-methylene blue sodium chloride broth slant confirmation medium. This method, however, must be confirmed by a microscopical examination and a catalase test.

Chapman [18] in 1944 published formulas of two media for the isolation of streptococci in mixed cultures. Tellurite streptococci medium contained crystal violet, trypan blue and sodium tellurite as active agents. On this medium, *S. salivarius* produces pale blue opaque colonies from 2–5 mm. in diameter, *S. mitis* produces blue colonies about 0.2 mm. in diameter, while the enterococci give a dark brown or sometimes black, slightly raised colony from 0.5 to 1.5 mm. in diameter. Ninety-seven per cent of the transplants from feces were streptococci; the remainder were staphylococci. The azide violet blue medium contained S.T. 37, sodium azide, and crystal violet as inhibitory agents. In this medium *S. mitis* grows in colonies producing orange halos; enterococci produce large blue colonies with halos in some; while *S. salivarius* produces no halo. It was reported that with the increase of sodium azide in this medium, more coliform bacteria were inhibited but the size and number of streptococci colonies were also reduced.

In 1946 Chapman [19] reported a medium for the isolation of enterococci. This was called mitis-salivarius agar—a modification of a former medium. Enterococci produced a dark or black, slightly raised colony about a millimeter in diameter as contrasted to a blue (gum drop) colony of *S. salivarius* or the minute colony of *S. mitis*.

Mallmann and Seligmann,[20] in a comparative study of media for the detection of streptococci in water and sewage, studied the following media: lactose broth, azide broth (Mallmann), S.F. broth (Hajna and Perry), and azide dextrose broth (Rothe). The results of this study were as follows:

Average streptococci indexes of river water:

Medium	Number of Streptococcus per 100 ml.
Lactose broth	930
Azide broth (Mallmann)	3,700
S.F. broth (incubated at 45° C.)	600
Azide dextrose broth (Rothe)	9,200

The authors stated that the positive azide glucose tubes should be checked microscopically because some Gram-positive rods may show turbidity equally as good as the streptococci. They suggest azide dextrose broth as a new means of testing for and measuring streptococci in water, sewage, and shellfish, as well as other materials suspected of sewage pollution.

As a result of the studies made by Mallmann and Seligmann,[20] it was de-

cided that azide dextrose broth (Rothe) was a satisfactory enrichment medium to obtain a presumptive test for streptococci. In the studies presented, an attempt has been made to develop a confirmatory medium so that an enterococci index could be obtained in a manner similar to that used for the detection of coliform according to the present standard procedures for water analysis.

In order to formulate a confirmatory medium for enterococci a base medium first had to be perfected that would not only support the growth of a minimal seeding of these organisms but would also give a short lag phase in the development of the resting cells.

The procedure for determining the growth rate of *S. faecalis* in various test media was that used by Darby and Mallmann [21] and is as follows: A 24-hour culture, which was transferred each day for four days in brain-heart infusion broth, was diluted so that between 20 and 100 organisms per ml. were present. A seeding of this density was planted into flasks that contained 100 ml. of the test medium. Initial plate counts were made immediately after the original seeding and every three hours thereafter, up to and including the ninth hour of incubation. The flasks were incubated at 37° C. and shaken for two minutes prior to each sampling. A dextrose agar with the same base ingredients as that used in dextrose azide agar was used. All plates were incubated at 37° C. for 24 hours.

Six formulations of media were tried with five separate trials. The best results were obtained with a medium containing the following ingredients:

	Per cent Composition
Tryptose (Difco)	2.0
Dextrose	1.50
NaCl	0.50
K_2HPO_4	0.27
KH_2PO_4	0.27
Sodium azide	0.02

Media containing 1.5 and 3.0 per cent salt were found to be slightly inhibitory.

In an attempt to increase the inhibitory action of the medium for Gram-negative bacteria, as well as to determine the limiting concentration for the enterococci, media were prepared with concentrations of sodium azide ranging from 0. to 0.05 per cent.

These media were tested by growth curve rates as previously described. The results indicated that the growth peak for the control (no sodium azide) was 18 hours; whereas, the growth peaks for media containing 0.02–0.03 per cent sodium azide were 42 hours and for media containing 0.4–0.5 per cent were 48 hours or more. The medium containing 0.02 per cent sodium azide inhibited the coliform organisms.

The medium containing 0.04 per cent sodium azide was selected on the basis that enterococci tolerated this concentration with good growth in 48 hours. Inasmuch as the medium was to be used as a confirmatory test, the organisms transferred to this medium would be in their logarithmic growth phase and a large number of cells would be used. For this reason the medium could actually be slightly toxic to resting cells of enterococci.

When this medium was used as a confirmatory test for enterococci on sewage contaminated river samples, the Gram-negative bacteria were inhibited but some spore-formers, such as *Bacillus subtilis* grew. For this reason the addition of another inhibitory agent was necessary to remove Gram-positive bacteria, other than enterococci.

A bacteriostatic dye inhibitory to Gram-positive bacteria, ethyl violet, has been reported by Litsky, Mallmann, and Fifield.[22] They report that this dye is equal to crystal violet and brilliant green in bacteriostatic action against Gram-positive spore-formers but is far less toxic toward Gram-negatives, such as *E. coli* and the Salmonella group.

This dye along with crystal violet and brilliant green was tested for inhibitory action against *S. faecalis*, *B. subtilis*, and *Micrococcus pyogenes* var. *aureus* by checking for complete inhibition or uninhibited growth both in liquid and solid media in 48 hours at 37° C. At a dilution of 1–800,000 for crystal violet and 1–1,200,000 for ethyl violet, *B. subtilis* and *M. pyogenes* var. *aureus* were completely inhibited and *S. faecalis* grew without apparent inhibition.

When confirmatory media were prepared using the above mentioned dyes at the designated dilution, and tested on contaminated river water, the ethyl violet azide broth gave the best results. For this reason, the ethyl violet formula was adopted for further work. The formula was as follows:

	Grams per Liter
Tryptose	20.0
Dextrose	15.0
NaCl	5.0
K_2HPO_4	2.7
KH_2PO_4	2.7
Sodium azide	0.4
Ethyl violet	0.00012

The medium is sterilized at 121° C. for 15 minutes.

Ethyl violet is an uncertified dye so the dye content varies from one batch to another. In the original studies National Aniline and Dye Company Lot 3330 with a dye content of 64.7 per cent was used. Later media have been prepared with Lot 12552 with a dye content of 57.5 per cent.

The specificity of the medium for enterococci was determined by seeding the medium with a number of cocci and incubating for 48 hours and examining the tubes for turbidity.

The cultures selected were as follows:

Number of Isolates	Name of Organism	Growth
8	*S. faecalis*	+
1	*S. durans*	+
1	*S. liquefaciens*	+
1	*S. zymogenes*	+
3	*S. salivarius*	—
4	*S. mitis*	—
1	*S. bovis*	—
1	*S. equisimilis*	—
1	*S. lactis*	—
1	*S. thermophilis*	—
1	*S. agalactiae*	—
1	*S. uberis*	—
1	*S. canis*	—
1	*S. equi*	—
24	*M. pyogenes* var. *aureus*	—
1	*M. pyogenes* var. *albus*	—
1	*M. pyogenes* var. *agilis*	—
1	*Sarcina lutea*	—
1	*Sarcina citrea*	—
1	*Serratia marcescens*	—
Other organisms tested		
1	*Proteus vulgaris*	—
1	*E. coli*	—
1	*E. coli* var. *communior*	—
1	*Salmonella typhimurium*	—
1	*Salmonella typhosa*	—
1	*Shigella alkalescens*	—
1	*B. subtilis*	—
1	*B. cereus*	—
1	*Alkaligenes faecalis*	—
1	*Chromobacter violaceum*	—

The results are particularly interesting in that the medium is specific for enterococci. It is also interesting to note that all Gram-negative and positive bacteria tested other than the enterococci are inhibited. It will be observed that all four species of enterococci grew equally well.

In order to test the effectiveness of ethyl violet azide broth as a confirmatory medium for the detection of enterococci, samples of water were collected from a river at points of little sewage contamination and at points below the outfall of a sewage effluent from a complete treatment sewage plant. Appropriate dilutions of the river water were added to dextrose azide broth and incubated at 37° C. for 48 hours. Three loopfuls of the positive dextrose azide broth tubes were seeded into ethyl violet azide broth which was incubated at 37° C. for 48 hours. Microscopic examinations were made from all positive dextrose azide and ethyl violet azide broth tubes after 48 hours incubation. In one series, 164 samples were tested and in another series six months later 50 samples were checked.

The need of confirming the positive dextrose azide broth presumptive tests was clearly indicated by the fact that in 50 samples examined, the average MPN index was 1,350 and the average presumptive MPN index was 5,370. The "false-positives" obtained in the presumptive test is due mostly to the growth of Gram-positive bacilli and to some extent to Gram-positive cocci other than enterococci. Mallmann and Seligmann [20] observed that the dextrose azide broth was selective for streptococci only in the absence of Gram-positive rods in the test material. River water generally carries a relatively high population of bacilli.

Since some streptococci were found microscopically in the 48-hour dextrose azide broth tubes, but were not confirmed in the ethyl violet azide broth, tests were made to determine whether these organisms were of fecal or non-fecal origin. Tubes which were not confirmed were diluted by loop dilution and plated on brain-heart infusion agar. After incubation at 37° C. for 24 hours, discrete colonies were fished and planted into tryptose phosphate broth. After purity was established these cultures were tested for growth at 45° C. and in 6.5 per cent sodium chloride broth. Of 82 cultures checked, seven were classified as fecal and five of them now grew in ethyl violet azide broth. These "false-negatives" in ethyl violet azide broth may have been due to insufficient inoculum or to atypical strains.

Out of 277 positive ethyl violet azide tubes examined microscopically, two showed Gram-positive rods alone and two showed Gram-positive rods and chains of streptococci. The Gram-positive rods do not appear in the dextrose azide tubes in the low dilutions where enterococci are present. They appear in the high dilutions only when the incidence of Gram-positive bacilli is greater than the enterococci. In the river water with a low sewage contamination, Gram-positive rods frequenty appeared in the 0.01 ml. dilutions. It is interesting to note that in only two cases growth occurred where dextrose azide tubes containing Gram-positive rods were transferred to ethyl violet azide broth.

TABLE 1

The MPN of Enterococci Which Were Detected and Confirmed by Various Methods

Sample Number	*Perry's S. F. Method*	*Winter and Sandholzer's Method*	*Dextrose Azide and E. V. A. Broth Method*
1	91	0	920
2	91	0	430
3	36	36	430
4	36	0	740
5	240	0	920
6	91	0	150
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	73
12	0	0	73
13	0	0	480
14	0	0	240
15	0	0	920
16	0	36	430
17	0	0	9,200
18	0	0	2,500
19	0	73	140
20	0	91	920
21	0	240	240
22	91	150	2,500
23	240	1,470	4,300
24	7.3	36	91
25	0	90	1,500
26	40	150	700
27	91	210	4,500
28	0	70	4,500
29	0	450	2,000
30	40	450	25,000
31	240	1,500	20,000
32	91	450	25,000
33	0	3,000	110,000
34	0	40	2,500
35	0	0	15,250
36	91	40	15,000
37	0	40	35,000
38	40	40	20,000

Although as indicated, in a few instances enterococci growing in dextrose azide broth failed to grow when transferred to ethyl violet azide medium, and in a few instances, growth in the latter medium was due to Gram-positive rods. The procedure for determining enterococci quantitatively by a presumptive

test in dextrose azide broth followed by a confirmatory test in ethyl violet azide medium appears to be a satisfactory method.

To compare the dextrose azide-ethyl violet azide broth method for the detection and confirmation of enterococci with other methods that have been recommended, samples of river water and sewage were planted into these media and confirmation procedures carried out as previously described.

The dextrose azide-ethyl violet azide broth procedure was compared with the Winter and Sandholzer method and the Hajna and Perry procedure using samples of river water and sewage. Suitable dilutions were planted in parallel. The results are presented in Table 1. In every case, with the exception of sample 21, the dextrose azide-ethyl violet azide procedure detected and confirmed 100–1,000 as many enterococci as did the other two methods. Samples 6 to 12 were taken from a relatively unpolluted stream. Indexes of 73 were obtained in two samples, Numbers 11 and 12, with dextrose azide-ethyl violet azide method, but the other two methods failed to show any enterococci in any of the six samples.

SUMMARY

A selective medium containing ethyl violet and sodium azide is presented that is specific for the growth of enterococci from pure cultures or from glucose azide broth showing growth from sewage contaminated water.

A new test for enterococci is proposed wherein glucose azide broth is used as a presumptive medium and ethyl violet azide broth as a confirmatory medium.

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In each of several recent years fewer cases of syphilis have been detected: the decline being evidenced both percentage-wise and in round numbers. Quite reasonably then, the phenomenon prompts the question posed by this paper—which is not a brief for, or against, premarital examination laws.

Premarital Examination Laws—Are They Worth While?*

California Experience with Two Million Examinations

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THE control of syphilis depends for the most part on the destruction, by antibiotic therapy, of the causative organism, in the human host. Control measures used against other communicable diseases such as immunization of the population at risk and the elimination of an intermediate host or vector are not available as weapons against syphilis.

Premarital examination laws have been passed by legislative bodies as a public health measure to assist in the control of syphilis. They establish a procedure by which individuals with syphilis, in the large segment of the population who each year apply for marriage licenses, are screened out and brought to medical supervision and treatment.

This legislation warrants special consideration by public health workers at this time. As a result of the marked decrease, in recent years, in the number of reported cases of syphilis, and the especially rapid decline in reported cases of infectious syphilis, it becomes desirable to re-evaluate this legislation to find out what is being accomplished by it, at what cost, and whether or not it is worthy of continuation in its present or in modified form.

The first state law requiring premarital examinations became effective in Connecticut on January 1, 1936. Following this, similar laws were adopted by a majority of the states in what has been termed "a legislative landslide unsurpassed in speed and scope." Thirty-eight states and the Territories of Alaska and Hawaii now have laws for premarital examinations of both parties to the marriage contract, and one state, Louisiana, has a law which requires premarital examination for the man only.

THE CONTENT AND PROVISIONS OF PREMARITAL LAWS

The California law, adopted in September, 1939, is similar to those of most

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other states and provides for the following:

1. Each applicant for a marriage license is required to present to the licensing authority a certificate from a licensed physician stating that a medical examination, including a standard serologic test for syphilis, has been made within the past 30 days * which showed freedom from infectious syphilis.
2. Certificates of examination and laboratory reports are accepted from other states with similar premarital examination laws, and also certificates for military personnel from the Medical Department of the Armed Forces.
3. A standard serologic test for syphilis is defined as a test approved by the State Department of Health and performed by the State Department of Health or by a laboratory approved by it.
4. Reports of premarital serologic tests are confidential and not open to inspection by the public.
5. Marriage of infected persons is permitted in special cases by order of the proper court.
6. Any misrepresentation of essential facts or any other violation of the Act is a misdemeanor.

EPIDEMIOLOGIC FOLLOW-UP

The epidemiologic follow-up procedure in California for persons with positive or doubtful premarital serologic tests, from which the basic data used in this evaluation have been obtained, is as follows. All laboratories doing premarital tests, send to the State Department of Health, for each test done, a copy of the completed laboratory report form. This report contains the examinee's name and address, the name of the physician, and the result of the test.

For individuals with positive or doubtful tests the data on the laboratory report form are transcribed by the State Department of Health to a venereal disease epidemiologic report form and sent to the local health officer for follow-up. If the individual is a patient of a private physician, this is noted on the epidemiologic report form. In such cases the initial, and often the only step in the epidemiologic investigation by the local health department, is to contact the physician to ascertain whether the patient remained under medical supervision, whether the diagnosis was confirmed by further study, and, if so, the stage of the disease and the status of the case as to previous therapy. In some cases the physician reports that the patient lapsed prior to completion of diagnosis or treatment and an effort is made by health department personnel to contact such individuals directly in order to return them to medical supervision. For individuals who have premarital examinations at health department clinics essentially the same procedure is followed. When the follow-up investigation is completed, a copy of the epidemiologic report giving the results of the investigation is returned to the State Department of Health. The data on the reports are coded and machine tabulations are run monthly. These tabulations provide information as to the number of examinees with positive or doubtful tests, the number for whom epidemiologic follow-up has been completed by local health departments and results of the investigation in terms of the number brought to medical examination, the number found to be infected, the diagnosis, and whether or not the individual had received treatment for his infection prior to the premarital examination.

SOME FACTORS INVOLVED IN EVALUATION

Our general approach to this problem has been to ask ourselves these questions: (1) What does the premarital examination law accomplish with regard to the detection of cases of infectious syphilis? (2) How effective is this legislation in preventing the disabling and fatal sequelae of syphilis? (3) Do the processes set in motion by this legislation produce, as a by-product, other effects of significance in the venereal disease control program or of importance

* The time interval beyond which the examination is not acceptable varies from 10 to 40 days in different states.

in regard to other phases of disease control and prevention? (4) What are the cost factors?

Table 1 indicates the number of tests done and the number of cases of syphilis found during our 12 years of experience with this legislation.

TABLE 1

Results of Premarital Tests for Syphilis California, 1939–1951

1. Number of tests done	2,156,678
2. Positive or doubtful tests	
a. Number	38,820
b. Per cent of total tests	1.8
3. Diagnosed cases of syphilis	
a. Number	27,950
b. Per cent of total tests	1.3
c. Per cent of positive or doubtful tests	72.0
4. Previously untreated cases of syphilis	
a. Number	8,106
b. Per cent of total tests	0.37
c. Per cent of diagnosed cases	29.0
5. Cases in need of further therapy	
a. Number	2,977
b. Per cent of total tests	0.14
c. Per cent of diagnosed cases	10.7

Since 1939 over two million persons have had a premarital blood test and 1.8 per cent or approximately 39,000 of these tests have been reported as positive or doubtful. The doubtful tests were those which were read as 1+, tests in which the reading was 2+ or more being reported as positive. Of the 39,000 persons with a positive or doubtful test, 28,000 or 72 per cent were found to have syphilis as shown by further diagnostic study. However, 71 per cent of the 28,000 were known to have received treatment for syphilis before the premarital test was made. The remaining 29 per cent or 8,100 cases then represent the previously unknown and untreated cases that were discovered as a result of the premarital testing procedure. Of these 8,100 cases, 510 or 6.2 per cent were primary and secondary syphilis, 2,940 or 35.8 per cent were early latent syphilis (four years or less in duration), and 4,660 or 58 per cent were cases of either late latent, congenital, or late syphilis.

Eleven per cent of the diagnosed cases were found to be in need of further therapy as a result of the premarital examination. Thus, 3,000 such individuals were treated for syphilis in addition to the 8,100 previously unknown cases.

THE PURPOSE OR OBJECTIVES OF THE PREMARITAL LAW

Three differing interpretations can be made as to the intent and purpose of the premarital law depending upon the assumed scope of its objectives. It is necessary to take each of these into account in considering the effectiveness of this legislation.

Objective No. 1—The most restrictive interpretation is that the purpose of the law is to establish a procedure whereby infectious or potentially infectious syphilis will be detected and treated in persons who are about to be married in order to prevent the transmission of syphilis from one marital partner to another. This constitutes an attack upon the reservoir of infection.

Objective No. 2—A broader interpretation is that, in addition to the above, the purpose of the law is to provide a method by which persons with previously unknown and untreated syphilis, both infectious and noninfectious, will be brought to medical supervision and treatment early in the course of the disease, thus preventing the onset of late disabling forms of syphilis and the losses, economic and otherwise, to the family and the community which result. This constitutes an attack upon the reservoir of potential disability.

Objective No. 3—A still broader interpretation is as follows: In addition to the objectives stated above, the law provides a mechanism by which all individuals are brought into contact with a physician prior to marriage. Thus, an opportunity is provided for them to obtain, in addition to the specific examination for syphilis, other services which may be of critical importance in determining the success or failure of the

TABLE 2

Total Reported Cases of Primary and Secondary Syphilis Related to Number of Primary and Secondary Cases Found as Result of Premarital Examinations, California, 1949, 1950, and 1951

Year	Number of Premarital Tests Done	Total Cases Reported (All Sources)	Number Discovered as Result of Premarital Examination	Per cent of Total	Premarital Examinees Ratio Infected to Tested
1949	166,971	2,141	77	3.6	1 in 2,168
1950	174,926	930	50	5.4	1 in 3,498
1951	169,263	729	35	4.8	1 in 4,836
Total		3,800	162	4.3	

marriage. An unsatisfactory marital relationship often results in sexual promiscuity, and promiscuity is the most important factor in the spread of syphilis and other venereal diseases. The services referred to include:

a. Examination for venereal diseases other than syphilis and for other communicable diseases such as tuberculosis.

b. Complete medical check-up and advice concerning any conditions found which might have an adverse effect on the marriage or which need attention.

c. Advice concerning emotional adjustments and mental hygiene as it relates to problems encountered in marriage.

d. Advice concerning the sex aspect of married life.

e. Advice concerning children and the regulation of childbirth.

f. Advice as to other reliable sources of information concerning the marriage relationship, such as churches, community health education programs, schools, marriage counseling services, and sound publications.

TO WHAT EXTENT DOES THE PREMARITAL LAW ACCOMPLISH THESE OBJECTIVES?

Objective No. 1—To detect infectious syphilis and prevent its transmission.

During the three-year period, 1949, 1950, and 1951, a total of 162 cases of primary and secondary syphilis were discovered as the result of premarital examinations as shown in Table 2.

Persons with primary and secondary syphilis come to medical supervision for various reasons. Most report to a physician voluntarily because of symptoms or as a result of a contact or epidemiologic investigation. Some request examination though unaware of lesions because of fear of having been exposed. Some are examined in clinics operated by health departments for the purpose of providing medical examinations for persons who come to the attention of law enforcement agencies because of sexual promiscuity. Some are not examined at all. It has been estimated * that from 20 to 30 per cent of individuals with newly acquired infections never develop demonstrable early lesions, or the signs are so insignificant as to go unheeded.

In 1949 we made changes in the routine tabulations on epidemiologic reports pertaining to premarital examinations in order to study our experience in greater detail. Table No. 2 shows that out of a total of 3,800 cases of primary and secondary syphilis reported in California during 1949, 1950, and 1951, 162 or 4.3 per cent were discovered as a result of premarital examinations. Since the ratio of infected to tested decreased by over 50 per cent between 1949 and 1951, it follows that the unit cost per case discovered more than doubled during this three-year period.

It is impossible to estimate accurately the total number of new cases that

* Thomas, Evan W. Utilization of the Private Physician on a Contract Basis in Venereal Disease Control. Digest of Venereal Disease Seminar. U. S. Public Health Service, 20–23, May 21, 1952.

would have arisen from them, had these 162 infected individuals not been brought to medical supervision and treatment as a result of the premarital examination. They would, however, have served as foci for further dissemination of the disease. Thus, in addition to the 162 cases discovered an indeterminate number were prevented.

Objective No. 2—To detect infectious cases of syphilis, and in addition, to bring under medical supervision individuals with previously unknown and untreated syphilis (not necessarily infectious) and by treatment of their disease prevent its progression to late disabling and fatal types of syphilis.

It should be noted that we pass here from the primary objective of the epidemiologist, which is to prevent the transmission of communicable disease from one person to others, to a broader field of public health interest. This embraces the concept of secondary prevention. Its purpose is the detection of disease early in its course and the prevention in the individual, by therapeutic measures, of further progression and disability.

With regard to this objective it is desirable to relate the number of previously unknown cases of syphilis discovered as the result of premarital examinations to the total reported cases of syphilis in California in 1949, 1950, and 1951, as shown in Table 3.

During the three-year period 1949 through 1951, 1,079 individuals with previously unknown and untreated syphilis were brought to treatment as a result of having had premarital examinations. These constituted 3.4 per cent of all cases reported during this period. In this group the ratio of infected to tested was one in 437 in 1949 and one in 553 in 1951.

Objective No. 3—To detect infectious syphilis and prevent its transmission; to detect noninfectious syphilis and prevent its progression and resultant disabling sequelae; and, in addition, to provide an opportunity for individuals who are about to be married to receive the other medical and related services listed above which can be provided by a physician and which fall into the general category of premarital counseling. These services are a by-product of premarital examination legislation and are only indirectly related to the control of syphilis.

It is our opinion that it is not possible on the basis of presently available information to measure the impact of services of this type which are received by persons reporting to physicians for premarital examinations. Some of the questions to which answers would have to be sought prior to such an evaluation

TABLE 3

Percentage of Total Reported Cases of Syphilis (All Stages) Discovered as Result of Premarital Examinations, California, 1949, 1950, and 1951

Year	No. of Premarital Tests Done	Total Cases of Syphilis Reported (All Sources)	No. of Individuals with Previously Untreated Syphilis Brought to Medical Supervision as Result of Premarital Examinations	Per cent of Total	Premarital Examinees Ratio Infected to Tested
1949	166,971	13,210	387	2.9	1 in 437
1950	174,926	10,218	386	3.8	1 in 479
1951	169,263	8,887	306	3.4	1 in 553
Total		32,315	1,079		

are: (1) To what extent are such consultative services actually being provided by physicians to individuals who report to them for premarital examinations? (2) What are the criteria by which the adequacy of such services are determined? (3) How does one separate this factor from the many other variables that enter into the success or failure of the marriage relationship and relate it specifically to promiscuity and venereal disease?

COST FACTORS

A precise statement concerning the cost factors in this program cannot be made because of the lack of specific data. The analysis which follows therefore is included only for the purpose of indicating the general order of magnitude of some of the cost factors. Table 4 indicates the estimated cost of premarital tests in California during the period from 1939 through 1951.

TABLE 4

Estimated Cost of Premarital Testing California, 1939–1951

1. Total Cost	$10,523,253
2. Tests done by private laboratories	
a. Number	1,673,315
b. Cost	$10,039,890
c. Per cent of total cost	95
3. Tests done by public laboratories	
a. Number	483,363
b. Cost	$483,363
c. Per cent of total cost	5
4. Cost per previously unknown case discovered	$1,298
5. Cost per case for previously unknown cases, plus those found in need of retreatment	$948

The estimated cost of $10,500,000 is based upon a charge of $6 for each examination obtained from private sources, $3 of this being the fee of the physician who takes the specimen and $3 the laboratory charge for performing the test. For examinations obtained from public agencies the estimated cost is $1 for each examination including the serologic test. A survey or cost analysis would be necessary to determine accurately the cost of these services. Such a study has not been made, but it is believed that the figures used are conservative and that they reflect the cost of a minimal examination and laboratory charge. If a complete physical examination and other services, mentioned above, are provided as a part of the premarital examination the cost will be higher. Seventy-seven per cent of the individuals in California who have had premarital examinations have obtained this service from private sources at their own expense. Thus when allowance is made for the somewhat higher cost of premarital examinations obtained from private physicians and laboratories over those done in public clinics, it is estimated that 95 per cent of the cost of the program since its inception, or $10,000,000, represents a charge against the individuals who have had premarital tests done. The other 5 per cent, or $480,000, represents the cost of the 23 per cent of premarital examinations done in health departments and other public venereal disease clinics, and constitutes a charge against tax funds. The cost per case for the 8,100 previously unknown cases of syphilis discovered during the 12-year period is $1,300. The cost per case for the previously unknown cases plus the 3,000 cases found in need of retreatment is $948.

Table 5 indicates the cost of finding cases of previously untreated syphilis by premarital examinations in California during the past three years. The cost per case in 1951 was $2,741 and the average unit cost for the 1,079 cases discovered in 1949, 1950, and 1951 was $2,358.

SUMMARY

During the 12-year period from September, 1939, through 1951, 2,156,678 premarital examinations were made. These resulted in the discovery of 8,106

TABLE 5

Estimated Cost of Finding Cases of Previously Untreated Syphilis (Infectious and Non-infectious) by Premarital Examinations in California

Year	Number of Premarital Tests Done	Total Cost	Number of Cases Syphilis Discovered	Cost per Case
1949	166,971	$ 818,818	387	$2,116
1950	174,926	856,387	386	2,219
1951	169,263	838,704	306	2,741
Total	511,160	$2,513,160	1,079	$2,358

previously untreated cases of syphilis and an additional 2,977 previously known cases who were in need of further therapy.

During the past three years, 1949 through 1951, there were 511,160 premarital examinations which have resulted in the discovery of 1,079 cases of syphilis, of which 162 were primary and secondary cases. These constituted 3.4 per cent of the total cases (32,315) and 4.3 per cent of the primary and secondary cases (3,800), respectively, reported during this period. In addition, 404 previously known cases have been found in need of further therapy.

It should be noted that the number of premarital examinations has declined about 23 per cent, from a peak of 220,859 in 1946 to 169,263 in 1951, while in the same period total reported cases of syphilis have declined 63 per cent, from 24,221 to 8,951, and primary and secondary syphilis have declined 88 per cent, from 6,000 to 729 reported cases. In view of these trends it appears that the efficiency of the premarital examination law as a screening technic for the detection of syphilis has diminished during this period. This is borne out by our experience during the past three years during which the ratio of infected to tested has decreased from 1 in 437 to 1 in 553 for all forms of syphilis and from 1 in 2,168 to 1 in 4,836 for primary and secondary syphilis.

In conclusion, we have not attempted in this presentation to develop a brief either for or against the premarital examination law. Our purpose has been to present data from our experience in California and to discuss objectively some of the implications of this legislation.

PREMARITAL LAW IN PREVENTION OF LATE DISABLING AND FATAL TYPES OF SYPHILIS: ESTIMATED ECONOMIC EFFECT, CALIFORNIA, 1949, 1950, AND 1951

If the 1,079 previously unknown cases of syphilis discovered by premarital examinations in 1949, 1950, and 1951 had remained unknown and untreated, 140 of this group would have developed cardiovascular syphilis and 108 central nervous system syphilis.[1] The man-years of disability resulting from these 248 cases would amount to 1,360 years.[2] Assuming an average annual wage of $3,550[3] and a cost of $3.04 per day[4] for providing domiciliary care during the period of their disability, the economic loss which would have resulted from these 248 cases would be as follows:

a. In terms of productive manpower:	$4,828,000
b. In terms of cost of domiciliary care:	1,511,274
Total loss prevented:	$6,339,274

The estimated cost of the 511,160 premarital examinations done during this three-year

period is $2,513,910. This expenditure prevented a loss of $6,339,274 from cases of late syphilis. Hence, it is estimated that the savings which accrued to the citizens of California as a result of the operation of the premarital law during this three-year period amounted to $3,825,364 or an average of $1,275,364 per year.

1. Based on Bruusgaard's statistics (1929) as quoted by John H. Stokes, M.D., *Modern Clinical Syphilology*. Philadelphia, Pa.: Saunders, 1949, p. 178.
2. Estimated per procedure used by U. S. Public Health Service as outlined in a personal communication from Theodore J. Bauer, chief, Division of Venereal Disease, USPHS. Two years of disability prior to death is assumed for each case of cardiovascular syphilis and 10 years for each case of neurosyphilis.
3. Based on average earnings of $71.00 per week in July, 1951, for California production and related workers in manufacturing as given in California *Labor Statistics Bull.* No. 336 (July), 1952.
4. National average cost per diem in all Veterans Administration domiciliary units for 1950.

Current Medical Care Bibliographies

Organized Home Care Programs has been completed by the Subcommittee on Medical Care of the Committee on Administrative Practice, American Public Health Association. The eighth in a series of medical care bibliographies, it notes 34 articles of current interest in the field of home care, with emphasis on the formally organized programs. A limited number of copies are available from the subcommittee at 321 Congress Avenue, New Haven 11, Conn.

A highly specialized report, a bibliography devoted to the administrative methods of evaluation, control and improvement of the quality of medical care, designed primarily for administrators, is in preparation. This bibliography on quality will be concerned with the devices that may be used by an administrator and by the administrative structure of any organized medical service to check and improve the level of care rendered to patients. It will not deal with the clinical aspects of the quality of care nor with the general relationships of education or training to quality. The release of the "quality" bibliography is expected late in 1953 and will be made available to those interested in the administration of medical care.

Looked at even superficially, group counseling for young mothers would seem to possess several benefits. But putting such a plan to work is no simple administrative matter, as the experience related here reveals. The findings cannot but be of immediate moment, however, to all in the MCH field—and others, too.

Parents' Group Discussions in a Child Health Conference*

An Administrative Study

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WHILE it is recognized that every child is different from every other one and each mother has questions peculiar to herself, it is also obvious that all mothers have certain questions and problems in common. It should be possible to combine an individual approach to the needs of each mother with a group approach to the needs of all. One cannot supplant the other; each should complement the other.

The purpose of this paper is to study the administrative problems arising from the introduction of group methods into the traditional child health conference.

There are four possible advantages which might derive from the group method in a child health conference. First, it is conceivable that professional time could be saved by answering common questions in a group rather than individually and that more time might thereby be made available in individual interviews for other phases of parent counseling. In the beginning, however, using the new technic will require more rather than less time.

A second advantage is the likelihood that group counseling, complemented by individual conferences, will prove more effective than the latter alone. Mothers support each other and sometimes are readier to change practices when suggestions come from their peers rather than from staff. In the same way they may feel more secure about what they are already doing.

Possible changes in staff attitudes and procedures is another reason for developing the group method. Parent participation in the traditional physician's or nurse's interview is quite limited, with the professional person doing much talking and little listening. The group discussion may help the staff to develop the habit of listening more and to gain a clearer impression of parents' real feelings, experiences, and points of view. Such greater understanding can carry over into the interview relationship.

A fourth possible result of the group method is a change in the focus of the child health conference. Even where the staff is permissive and emphasizes psychological aspects of child rearing, both mothers and professional people often retain a traditional attitude toward the purpose of child health conference visits.[1]

Purposes of Group Discussion—The

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primary purpose of the group discussion may be parent education, staff training, or research. The details of the procedure, obviously, are determined by the aims.

Timing—Scheduling of the group discussion can relate to the regular session of the conference in several ways. It may be held separately from the regular time of the child health conference. Because of its advantages—evening sessions permit father participation, for example—this may become the method of choice.

The mothers may meet during the regular conference session, either on the day of their infants' scheduled visit or on another day. The former method was usually followed in the present study to avoid an extra trip by the mother and to study the administrative problems involved. Mothers were asked not to bring their preschool children, if possible. If mothers usually come alone, the discussion should be held at the beginning or end of the session.

Use of Personnel—There are three possible ways to use staff for the group discussion. First, such special persons as a psychiatrist, psychologist, social worker, or health educator might be brought in just for the discussion. Several past studies in the New York City Department of Health indicated that the use of special personnel is helpful in staff development but does not seem to be a sound approach to the general use of the group method. Second, carefully selected doctors and nurses working regularly in the child health conference might be used, and third, all the physicians and nurses of the conference could participate.

One objective of the present study was to develop the last pattern so that all doctors and nurses would use both group and individual methods and so that the same staff would relate to a specific mother by both approaches.

Content Focus—By selecting mothers with problems which are deviations from normal, counseling might concentrate on pathology. This study, however, was concerned with developing group methods within the usual scope of the individual child health conference interview, in which the staff is supposed to be aware of deviations and is expected to make proper referral where needed. In the same way, the staff should make referral when abnormalities are uncovered in group discussion. Such situations should not be permitted to dominate the discussion and the persons involved should be dropped from future meetings. There is too often a tendency to develop an amateurish psychotherapeutic implication in the relatively free discussion of a group.

Within the "normal" range of problems, emphasis could be placed on those definite though mild difficulties that have already developed or on anticipating the common problems usually encountered. In the latter case, the focus would be on an educational or informational level rather than on problem solving. The educational approach was used in this study with the recognition that "problems" do emerge and that they should be met as they come up rather than form the basis for planning the group discussion.

Patterns of Participation—Emphasis on anticipation determines the pattern of parent participation, that is, whether all mothers or only selected mothers should be included. Obviously, in a general educational program all mothers must be included, although not every mother need be exposed to every educational technic.

Early in this study some mothers with severe language difficulty were included. Ill at ease, and unable to keep up with free and rapid conversation, they missed the studied effort to communicate found in the individual interview. Such nonparticipating mothers interfered with

the freedom of other mothers and they were dropped thereafter from the groups. With more experience, other types of persons unsuited to the group discussion method may be found.

Structuring of Groups—Groups may be formed in at least two possible ways, haphazardly by bringing together those mothers who happen to be present, or by advance scheduling. Because the planned structuring of groups introduces many administrative problems into the appointment system, the general use of group discussions in child health conferences may eventually be possible only by haphazard groupings, but with the selective exclusion of some mothers. The structuring method is, of course, changed by the particular focus desired. If the focus is problems, then mothers with common problems might be selected. If anticipatory guidance or counseling is to be the emphasis, then the ages of the children would more probably be the basis for selecting mothers, as it was in the present study.

Groups were organized on the basis of the age of the youngest child. The first year was divided into five age spans: birth through six weeks, seven weeks through three months, and each of the next three-quarters of the year. Some age spread in each group was considered desirable so that the mother who had already worked through a situation, such as introducing first solids, could tell her experiences and solutions to the others.

Method of Study—From among the approximately 80 child health stations administered by the Bureau of Child Health of the New York City Department of Health, the "Lillian Wald" station was selected for the holding of one group discussion a week during parts of 1950 and 1951. Experimentation with the new technic was expected to introduce difficulties and to reduce the number of children seen. Because discussion was to be limited to about 20 minutes and because only one physician and nurse of the two physicians and three nurses were to be included in the discussion, reduction of the number of appointments was not expected to be excessive. A short discussion period was decided upon because the group method was being introduced into the middle of the regular session. A longer period, perhaps up to an hour, would seem more logical for discussions held at times other than during the child health conference.

The clientele of the Lillian Wald Station comes in part from the housing project in which it is located and in part from the adjacent community. Mothers derive from various ethnic backgrounds and most of them have several children. Nonetheless, they seem to have the same questions and problems as with a first child, although with more personal experience to apply to the discussion.

Four aspects of this study should be emphasized: it focused upon administrative questions rather than the technic of group discussion; the discussions were usually led by the author who was not a regular member of the staff and not well acquainted with the mothers, thus requiring the staff to provide him with certain information in advance of each discussion. For the purpose of the study, a stenographer was present but did not seem to interfere with the freedom of discussion. And last, visitors were often present.

Physical Setting—The Lillian Wald Station has a large adjacent room with communicating door, space that is not ordinarily available in other child health conferences. If the group method is to be widely used, less special arranging would seem preferable. Recent recommendations on new child health station architecture provide for physicians' conference rooms large enough to hold group discussions.

The discussion room at Lillian Wald is separated from the waiting room and

children's play area by a single door. The preschool age children knew their mothers were on the other side of the door and frequently interrupted by coming through or by banging if the door was locked. It is advisable that the discussion room be removed from the children by a corridor or vestibule with two doors. Although children were not usually included in the group, they would sometimes come in. They were not prevented from entering because they were more disturbing to the mother and the group when kept on the other side of the door. In no instance did the entrance of the children disturb the discussion appreciably, even though at one group there were as many as four children present at one time. The child usually sat in the mother's lap or stood next to her. One fell asleep.

Chairs were arranged in an informal circle. More comfortable chairs than those ordinarily found in a waiting room might be helpful although the advisability of developing a completely atypical atmosphere such as by serving tea is doubtful.

Gathering of the Group—It was found that the way in which the group was gathered had a strong influence on the success of the discussion period. It is essential that all the mothers be gathered together in the waiting or dressing room and brought into the discussion room at one time.

Care of the Children During the Discussion Period—The mothers in the discussion group must feel secure that their children are being well cared for while they are separated from them. For the infants it is merely necessary that someone be at hand to keep them from falling and if necessary to hold and placate the ones that cry. It is undesirable to tie up the time of one of the nurses for this purpose but rather it is better to use a receptionist, clerk, public health assistant, matron, or volunteer.

The older children were less of a problem from the point of view of safety, but more of a problem because of their interrupting the discussion period. They were placed in a fenced-in play area and watched by one person, usually the matron or sometimes a volunteer. The question of watching the children during the discussion period remains one of the more difficult administrative problems in introducing discussion group methods into a child health conference at the same time as the conference is in regular session.

Hour—In a three-hour session, the discussion period should be held at the beginning of the second hour, in order to include the maximum number of mothers with minimal inconvenience. A number of the mothers should have their individual interviews before and some after the group discussion.

Duration—At first, a length of 15 minutes was decided upon but was soon extended to 25 minutes, chiefly under the pressure of the mothers' continuing to ask questions.

Number of Persons Present—A group size of eight to ten mothers was aimed at. More than twelve or fifteen is probably too unwieldy because of the need, among other control features, for the physician and nurse to make notes or otherwise keep track of discussions for carry-over into individual interviews.

Time Study—An effort was made to measure the effect of the existence of the discussion period during a child health conference session on the time that mothers spend at the station and the length of their individual interviews with the physician and nurse. Definitive conclusions could not be drawn because the nurses reduced the number of appointments and visits on discussion mornings as compared with regular days. They felt this to be necessary because of the newness and strangeness of the procedure. As a result, waiting time was not increased and individual interview time was not restricted. It

was clear, however, that protection of the individual interview against encroachment by the group discussion requires careful spacing of appointments and proper timing of the group discussion period during the conference session. It was also manifest that half of the mothers visiting any regular conference session can be found waiting simultaneously at several points in the session. They could easily be gathered into a group for constructive use of otherwise wasted time.

Selection of Topics—After grouping mothers according to the age of the youngest child, topics of common interest to those ages were selected on the basis of past experience. These topics were used to open the discussion but were not strictly adhered to. Sometimes a topic raised by the group aroused so much interest it was carried over to a subsequent meeting by agreement.

Topics that were discussed for each age group included:

For birth through six weeks—nipples, sterilization, spitting up, bowel movements, sleeping positions, hiccuping, coughing, sneezing, Moro reflex, spots and blemishes on the skin, snoring, discharge from the eyes, vaginal discharge, breast feeding.

For seven weeks through three months—spitting up, first solids, sleeping positions, wetting, wearing rubber pants, changing diaper in middle of feeding, washing diapers, crossed eyes, pacifier, night feeding, colic.

For four through six months—sitting up, keeping covered at night, teething, crying at night, exposure to sun, suppositories.

For seven through nine months—teething, crying at night, thumb-sucking, feeding, weaning, colds.

For ten through twelve months—thumb-sucking, colds, going to sleep, fear of strangers, clinging to parents, shoes, walking, weaning, bowel training, feeding.

Professional Participation—When the regular conference physician and nurse participate in the discussions, they have basis for interjecting helpful comments and for detecting new problems that had not been uncovered in the individual interviews. Physicians and nurses repeatedly evidenced surprise that mothers raised questions which they had not asked in individual conferences.

The method of carry-over in recording has not thus far been investigated. For the mothers who have had that day's individual interview completed before the discussion period, some arrangement must be made, perhaps at the end of the session, for later recording on their charts. For the mothers who have not yet had their individual interviews, the recording could be incorporated into the notes that would be made at the time of the individual interview later in the same session.

There is no basis for determining whether the participation in the group of an additional outside physician, such as existed in this experiment, was entirely a disadvantage. It could well be that the mothers are stimulated to discuss new things with a strange physician. They may think that this is "old stuff" to their physician and nurse. This is an element that needs careful study.

Frequency of Attendance of Any Given Mother—When the group discussion is incorporated into a regular conference session, the attendance of any mother at a discussion group is determined chiefly by the appointment that is made for her individual interview visits. For the infant, this more or less becomes a monthly visit, especially in the first half of the first year. On this basis an interval of one month was chosen for any given mother's participation in discussions. For the older child, however, visits are usually scheduled at longer intervals, even reaching six months between appointments. Obviously such an interval would mean very few discus-

sions for each mother. This suggests that the focus of discussion periods that are held *during* a child health conference session should be upon questions of the first year of life and that special discussion periods should be scheduled at other hours than those of the regular session for mothers of preschool age children, with adjustments for mothers who have children in both age brackets.

Continuity of Groups—In the first month of the study a group was started on each of four successive Thursdays. Theoretically each mother would be given an appointment for participation in the same group each month. Very quickly the groups began to exchange members. This was due to the fact that some of the mothers were given appointments six weeks rather than one month apart because of missed appointments or other reason.

Indexes were set up for measuring group continuity. N equalled the number of mothers who had been together with any other mother in the group at a prior discussion, over the number of mothers present. X equalled the number of previous acquaintances in a group discussion of all the members of the group added together, over the number of mothers present. For example, in a group of twelve mothers, eight had been in a previous group discussion with at least one of the other mothers. (N equalled 8 over 12 or 66 per cent.) In the same group of mothers, there were 63 occasions when any one of the mothers had been together with any one of the other mothers in previous discussions. (X equalled 63 over 12 or 5.2.) It was interesting to observe that both N and X quickly reached appreciable dimensions, despite the fact that appointments were made on a rather flexible basis and mothers moved back and forth among the four groups. Such relative continuity of grouping would be expected in a study situation where only four groups of selected mothers from among the total number of mothers attending the Child Health Station are involved in the group project. In a program in which almost all the mothers are participating in group discussions, a free movement back and forth among groups would not result in as high a degree of group continuity.

An attempt was made to correlate continuity of grouping with group discussion activity.[2, 3] In so far as could be measured during the course of the study, there seemed to be no definite relationship. As a matter of fact, many of the more active discussions were the first ones for a group of mothers. An attempt was also made to estimate whether the activity of any single mother's participation in a group changed with successive attendance, regardless of continuity of grouping. No correlation could be demonstrated.

Too few data were available to measure the effect of repeated attendance in group discussions upon the mother's role in the individual interviews. By and large, a mother who was outspoken at the group was also articulate in her individual interviews with physician and nurse. Similarly, the mother who was not active in the group did not ask questions freely in the individual interviews.

Summary of Factors in Discussion Activity—

1. Skill of the discussion leader and the nature of the participation of the physician and nurse.
2. Smooth functioning of gathering of mothers; avoidance of undue waiting time, and noninterruption of discussion by outside factors.
3. The appropriateness of the topics to the interest of the mothers participating.
4. The size of the group.
5. The personality of the participating mothers.

A factor apparently not important to discussion activity was previous acquaintance of the mothers with each other in prior group discussions.

Group Technics—Although the primary purpose of the study was to analyze administrative aspects, some of the experiences deserve mention for having illustrated known principles of the group method. The activity of the discussion leader changed with the character of each group. It usually seemed advisable to summarize in a minute or two at the end of the discussion period and as a means of closing the discussion. The summary would sometimes lead up to a decision by the group for continuing discussion of this topic at a future visit.

The tendency at first was for mothers to direct their comments to the discussion leader in line with the traditional relationship with a professional person. The discussion leader utilized the device of looking at another mother while one was making a comment, with the result that the talker often turned to that mother. The women quickly realized that they could talk with each other.

Three types of participation by mothers existed and were charted on diagrams for each discussion period.

1. Addressing the discussion leader or other professional person.
2. Addressing another mother.
3. Making a comment to the group as a whole.

Addressing a professional member of the group was responded to but there was sufficient delay before the response to permit other mothers to reply first. This often happened. Exchange between mothers was encouraged, particularly when it was loud enough for the rest of the mothers to hear. On several occasions the discussion group broke up into three or four simultaneous dialogues between pairs of mothers sitting next to each other. This was permitted to continue for a relatively short time before the group was pulled together again. Opinions were frequently addressed to the group rather than to any specific individual.

It occasionally became necessary to protect the group against an aggressive member and to pull the less articulate mothers into the discussion. Questions directed at the discussion leader were turned to the group when they seemed ready for it. Without careful timing, such a device can discourage spontaneous discussion by the mothers.

A direct question by the discussion leader often received a conforming answer. At first, the mothers tended to deny the existence of difficulties if they thought that such occurrences would be considered undesirable. They were anxious to please the discussion leader and to hold up their own status as successful mothers among the others. Often, however, even during a first attendance at a group discussion, mothers sensed the absence of judgmental attitude. This, plus the ability of other mothers to air problems, made it easier to follow along in kind.

The activity of the discussion was not necessarily proportionate to the apparent success in getting points across to the mothers. The present phase of this study did not attempt to measure effectiveness in change of attitudes or practices.

When a mother raised a question that was of specific interest to herself but not as much to the others, the discussion leader would divert the question to her later individual interview. Often, however, he was able at the same time to exploit the question by generalizing it somewhat so that it became of interest to the other mothers. For example, one mother raised a question of immediate concern to herself which could not be answered satisfactorily without examination of her child. Since she had not yet had her conference with the physician and nurse, she was referred to them for the answer to her question. Her question was, "My child sleeps in one position and I am afraid he is getting a habit of holding his head on one

side." This mother could not be reassured glibly without being sure that the child did not have a wry neck. However, for the group, the question was turned into the general topic of sleeping positions.

COMMENTS

Even if the discussion technics were not effective in parent education and were not found to be feasible on a routine basis, it could constitute an excellent staff training device and might be set up for that purpose. The group method helps the staff to know more accurately the prevalent practices and attitudes among the mothers. It breaks down the authoritarian nature of the doctor-patient relationship, of the nurse-patient relationship, and of the doctor-nurse hierarchy. When the doctor recommends something different from what was taught several years ago, a mother can ask the reason for the change in recommendation and the doctor can admit the fallibility of the medical profession. This helps the mother to see that there is not just one right way of doing things and it also gives the professional staff a chance to interpret the reasons for the changes in teaching.

Mothers are helped by the group discussions to make constructive comparison of babies and experiences and thereby to develop certain basic attitudes and philosophies in child rearing. Among these are several of extreme importance; one, that no two babies are alike and the other, that there is a definite order and timing in the growth of children which determines the appropriateness of parental actions.

The mothers seem to enjoy the group discussions. They are usually relaxed and have a chance to express some of their views in a more permissive atmosphere than at the individual interviews. They feel that the group is a place where one is supposed to talk and so are not backward about taking up time to express their own ideas.

A question might be raised concerning possible repetition of topics which mothers would be exposed to in view of the constant interchange of the groups. Furthermore, over a number of years a given mother might theoretically go through a repetition of discussions of the same items with each successive child. This is certain to happen, but it is not necessarily a disadvantage. As a matter of fact, in the present individual method she does exactly that.

It is more likely that as mothers change their ideas and attitudes they will, through the groups, determine a change in content of the items discussed by their group and they will do this more effectively than each separate mother can now change the emphasis or content of her individual interviews with physician and nurse.

For any large health department to introduce group methods into its child health conference program, certain stages of program development would seem logical.

1. A pilot program to test the procedure and adapt its pattern to that particular setting.
2. Staff training by participation and observation.
3. Progressive generalization of the method.

A question of great interest is the possible application of the group method to the private office practice of pediatricians. When the author was in private practice, he found it relatively easy to arrange for groups of parents of his patients to come to his office for group discussions.

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Experience accumulated through the many years since classes for expectant mothers—and fathers—first proved their usefulness can be adapted for, and carried over into, group guidance projects in other health services. Leadership even more than technical competence is the important limitation upon the extension of this educational device.

Parents' Classes in a Maternity Program*

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THE value of group teaching of parents' classes as a part of the total maternity program has been time-tested and should be unequivocally recommended as an essential part of any complete program.

It is over a generation since the first series of classes for expectant mothers was given in prenatal clinics. This program was sponsored by the Maternity Center Association in New York City. The general pattern of content and method of presentation used then has been adapted to similar programs in every state of the union and beyond.

What were the general over-all aims in designing such a program? It seemed important then, as now, to supply certain simple and basic knowledge. Such knowledge should include: the anatomy and physiology of the generative organs; the nature of the reproductive process; the changes, physical and emotional, which take place in pregnancy, labor, and the puerperium; the hygiene of pregnancy, including nutrition; the preparation for lactation; the nature of the newborn infant; the preparation of the layette; and the simple skills needed to give intelligent care.

Then too, the mother learned of community resources for her care and for baby follow-up and acquired an understanding of the kind of cooperation between herself, the doctor, and the nurse which might lead to the best possible outcome for her and her baby. Then, as now, an attempt was made to substitute knowledge for fear and to lend assurance by inspiring confidence. Sewing and knitting classes frequently served as a pivotal point on which an informal discussion might occur. Often the husband's role was wisely interpreted by encouraging him to share in preparation for the infant by designing and making simple nursery furniture.

In the good old days, the father did not enter into the picture until delivery was imminent in the home. The time-tested occupational therapy for father seemed to be the endless boiling of quantities of water. It has never been positively proved to what purpose this water was put but the psychological value is obvious.

Since the beginning of group teaching patterns, many changes in the education of children have been made. Some rudimentary study of biology and physiology have provided bases for building up a more advanced type of program in some areas. It might be stated, however, that in most cases, the rather fragmentary, half-forgotten mate-

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rial is at best only a small beginning. The readiness to learn engendered by the imminence of a dramatic change which will affect the lives of both parents is the best impetus to learn or review and relearn things previously studied.

Perhaps the greatest change since these classes were first introduced is the recognition of the psychosomatic approach to any problems of health and disease. Understanding the emotional components of pregnancy, labor, and delivery was best implemented in the philosophy of Grantly Dick Read, *Childbirth Without Fear*.

The timing of the first appearance of this concept was good. We had passed the pioneering stage in obstetrics when lifesaving methods were providing the basic structure upon which all care was built. Hospital delivery was the accepted trend of the day and the protection of mother and baby had gradually been secured by a series of regulations imposed upon the structure of maternity hospitals, often by departments of health. The aims and, in most cases the results, were salutary but the absentee control often resulted in the setting up of technics which separated the infant from his mother and his father, and the nurse from both. Instructions became rules, the center of which was the principle of aseptic and antiseptic technic. Gowns, caps, masks, separate personnel for mother and baby, architectural separation, and the relegation of the human factor to a minimum were the order of the day.

The discovery of the antibiotics, the use of less traumatic technics for delivery, careful asepsis in the delivery room, and the judicious use of transfusion had fundamentally changed the clinical picture. The further addition of early ambulation rendered many carefully formed routines obsolete. The essential quality of the slavish concept of asepsis over human values to the point of the ridiculous, was epitomized in a rhyme which was entitled "Strictly Germ Proof" by Arthur Guiterman.

> The Antiseptic Baby and the Prophylactic Pup
> Were playing in the garden when a Bunny gamboled up;
> They looked upon the creature with loathing undisguised,
> It wasn't Disinfected and it wasn't Sterilized.

It began to be recognized that there could be an intelligent use of the fundamentals of protection which did not require a top-heavy structure of rules which militated against the best interests of mother and baby. Added to this was the discovery that the large antiseptic nursery was not the answer to the deadliest of all infections of the newborn-infant diarrhea. This fact provided the loophole to implement the simplification of the involved technics to the point where it was possible to set up another modern concept, namely, "rooming-in."

So we had been overmechanized. J. B. Priestly best described this state. "Our modern mechanistic, overcrowded assembly line life is ruining us as thinking human beings. We are overinvented. We need to turn up some uninventors."

Read was surely an uninventor. He deprecates the use of anesthesia and excessive use of narcotics. The first reaction on the part of his medical colleagues was "horse and buggy." He believed the needs of the parent are paramount and that the average woman given proper preparation and emotional support would deliver herself and would derive inestimable satisfaction from this accomplishment, besides decreasing the hazards to the infant.

Through the sponsorship of the Maternity Center Association this controversial figure was brought to the United States where he made an indelible impression wherever he lectured.

His philosophy of care was adopted

as an experimental project at Yale's Grace-New Haven Hospital under the leadership of Dr. Thoms. The recognition of the success of this program is well known and the medical profession, spurred on by public demand, has accepted the program with varying degrees of enthusiasm.

The other arm of the Yale program followed the same uninventor's principle. The work of Gesell and Ilg, implemented by Dr. Jackson and others, resulted in an experimental project in rooming-in. This has been expanded from its original four beds and has been adopted in various other parts of the country at a continually increasing rate.

Both of these programs are dependent on the existence of an educational program and of a good patient-doctor and patient-nurse relationship. The exercise program taught to a group of nurses at Yale by Helen Heardman became incorporated in the prenatal program. It seemed to stimulate the whole teaching curriculum to include this segment of obstetric education.

Several books describing the method and outcomes of the Yale project were written by Thoms and Goodrich and have provided inspiration and guidance for others interested in setting up a similar program.

New York Maternity Center Association further promoted this program in their own parents' classes and provided instruction to staff and patients at New York Lying-In in the new technic.

There can be no doubt that this whole new development just did not happen. There was a well planned and well financed program intelligently operated. The press, the women's magazines, and the *Readers' Digest* printed articles to stir public interest and create a consumer demand.

The morning mail furnishes a clue to the increased demand for parent education. Many letters request an outline for a group of classes. Some seek instructors or training for their own personnel. Some doctors are teaching in their own offices using the group method and frequently the office nurse is delegated to teach preparation for labor to individuals or groups. Physiotherapists and latterly even beauty salons have been known to offer separate segments of this type of education.

Who should sponsor parent education programs? Who shall teach? What qualifications are needed and what type of teaching?

Let us consider the qualifications of the teacher. A graduate nurse with advanced preparation in maternity nursing and specific instruction in the content of parents' classes would be ideal, if she also possessed the technic of group leadership and interest and enthusiasm.

Obviously, the number of nurses so qualified will not be adequate even if university teaching centers cooperate in in the development of such programs. The well qualified nurse can be responsible for inservice teaching programs of not-as-well qualified persons and can use supervised practice methods.

Physiotherapists can be most helpful if there is a professional nurse to cooperate in the provision of other learning, besides actual technics of exercise. There is danger of having fragmentary learning when using teachers without the qualifications of the clinical specialist.

The university teaching center is ideally suited for providing education in the total maternity content with the inclusion of those newer concepts and a thorough preparation in group handling.

The university can test the outcome by research methods and can have the assistance of the obstetric specialist in the development of the program. It is most important to have a mutuality of purpose in any group effort. Too often the nurse has taken responsibility for teaching programs which have won tacit

acceptance but little participation or active interest on the part of the physician.

The new obstetrics requires teamwork. There is often intellectual acceptance of a concept without emotional acceptance. The result is a dichotomy of purpose which militates against success in practice. The result is often confusion and frustration on the part of the patient.

The graduate of the advanced programs in maternity should assume the responsibility for teaching the basic student to participate in the total program, for there is no more enthusiastic protagonist for this newer concept for caring for the woman in labor. She enjoys working with the woman who has had preparation for labor and is thrilled when the laboring mother successfully delivers her infant.

Students generally have not been so stimulated by what they are pleased to call the routines in obstetrics. The more mature experience of actively assisting the patient during and after delivery offers more challenge. It also seems to make her project herself into the future in anticipation of her own experience in childbearing. More students have expressed enthusiasm for the newer concepts than have graduates.

Divested of many routine tasks by the patient's own assumption of responsibility for care and by the increased use of auxiliary personnel, the graduate nurse badly needs the substitution of new responsibilities.

> New occasions teach new duties
> Time makes ancient good uncouth.
> They must upward still and onward
> Who would keep abreast of truth.

Where can we get the nurses who are willing and financially able to prepare themselves to meet the challenge afforded by the complex role as co-worker of the physician, friend, and tutor for the mother, and initiator of change in the framework she is to work in?

In the recent Congress on Obstetrics and Gynecology, Dr. Eastman has stated that: "The nursing profession has been the torch bearer in one of the most salutary efforts of our day, namely, the effort to reinstate childbearing as a natural function, to manage it with an understanding heart and, in so doing, to make the whole period of pregnancy, labor and the puerperium a happier, more wholesome and more emotionally rewarding experience."

Will the new challenge be tempting enough to win recruits? Can sufficient scholarships be made available to prepare them?

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This is in the nature of a commentary upon a series of papers—of which the two preceding formed a part. It measures them against a body of principle about which we, in public health, are hearing much. Their restatement in this frame of application may constitute a vicariously useful exercise for us.

Group Discussion of Parents of Handicapped Children from the Health Education Standpoint*

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A series of papers presented at the Cleveland meeting brought a great challenge to health education workers for the future, and once again they reemphasize the need for greater use of the personal and informal contact in small group discussion in improving health education programs.

The need for wider use of group discussion technics in health education is supported by two irrevocable tenets of educational theory as suggested by Paul Miller, sociologist, Michigan State University. First, that there can be little education without activity or participation and second, that there can be little education accomplished unless those involved are placed in situations that help them to view the problems peculiar to themselves from the vantage point of others. Effective education must provide for meeting these two tenets of educational theory. The evidence presented as a result of the experience of the speakers further bears out and supports the soundness of this educational theory.

In order to determine the effectiveness of the experiences presented from the health education standpoint, let us consider them in regard to some of the principles of adult learning as presented by Professor Andrew Hendrickson.†

1. *Adults need strong motivation*

Adults can change their behavior, but they need very adequate reasons given for such changes. They have become habituated to performing things in certain ways. They feel comfortable doing things in these ways and have adjusted many patterns of their activities so that they all fit together. When new ways of doing things are suggested, adults

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† Professor Andrew Hendrickson, Bureau of Special and Adult Education, Ohio State University. Presentation given at Sanitarian Seminar, Delaware, Ohio, January, 1952.

tend to resist because they are afraid of where the original disturbance to their plans might end. The group discussion experiences presented show how strong motivation can be continued and strengthened throughout the learning experience.

2. *Adults appreciate attention to their status as mature people*

We must assume that adults are mature, serious, and able to exercise judgment. A word of recognition as to some accomplishment which the adult has made or some position of honor which he holds among his peers are powerful incentives in having him act favorably toward another and what he has to say. The group influence on the individual tends to set the level of maturity which gives individual group members support and confidence in further participation. Dr. Luzzatti expressed this clearly in pointing out the promotion of the "we are not alone" feelings.

3. *Adults like to see specific, concrete, practical, and immediate results*

They are not concerned with abstract theory or faraway situations. If they can be shown where a proposed action will benefit them economically, socially, or otherwise in a specific way and in the near future, their resistance to change can be greatly reduced. The presentations at Cleveland show that informal discussions with other parents provide the atmosphere to understand better and appreciate specific results.

4. *Recognition of adults' status demands democratic participation*

When mature adults are given an opportunity to participate in formulating and executing decisions, these decisions have the best chance of being accepted and observed. Dr. Bice pointed out in his presentation that the parents took the initiative and organized the groups. This helped to set the stage for democratic participation.

5. *The adult has experiences and interests to which new actions should be related*

Through extensive research, Dr. Thorndike of Columbia University found that adults will accept new ideas and actions when they are related to other ideas and actions in which the adult has participated. All of the Cleveland presentations show evidence that the group discussions provided for relating past experiences and interests. The discussion of similar experiences by other parents help promote understanding and acceptance of new ideas.

6. *Adults need a frequently recurring sense of accomplishment*

The group discussions have shown in each case that the parents feel they have made progress in their understanding of their problems and in their ability to cope with them. Further motivation is also provided by achieving this sense of accomplishment.

The experience of these parent group discussions indicates that they have met to a considerable degree the needs of educational methods as described by Hendry, Lippitt, and Zander, in their presentation *Reality Practice as Educational Methods*.[1] These are:

1. A need to bring the group into closer relationship with the life situations of which learning is being undertaken.

2. A need to realize that primary attention must be given to the interpersonal relations between all members of the learning group and to the position of the teacher or consultant in this total group structure. An example of this is the importance of the group process in problem-solving.

3. The need to accomplish more than effective transmission of information, especially where the educational obligation is to transmit actual performance skills or to create basic attitudes.

The progress and results of these group discussion experiences seem to point out the effectiveness of leadership and indicate that the group efficiency was a joint responsibility of the leader and of the group on a basis of joint participation and recognition. Such leadership is the result of careful and skilled planning on the part of the consultants concerned.

It is interesting to note that progress was achieved in a group concerned with diabetes with both parents included. While in a cerebral palsy group, it was necessary to separate the fathers and mothers. Such differences are due to many varying factors and it might be important in the future to consider some of these underlying causes in relation to other methods of adult learning.

I would like to give a brief review of a study by Shaw, Newcomb, and Hartley on "A Comparison of Individuals and Small Groups in the Rational Solution of Complex Problems." [2]

This study was concerned with individuals having actual problematic situations which would call for intelligent thinking to arrive at a proper solution. The problems selected involved a number of steps all of which must be correct in order for the right answer to be found. The problems were to be given to individuals and to small groups in order that the abilities of these two might be compared. The problems could not be solved by "sudden insight." Participation called for an interchange of ideas and for acceptance, criticism, or rejection of any idea put forth. These problems are not the type of situations met in real life; there is only one best solution; they arouse practically no emotional bias. Subjects were students in a social psychology class at Columbia University and almost all were graduates working for an advanced degree. Sexes worked in separate groups not in order to show a sex difference, but because it was thought it would make for better cooperation and more smoothly running groups. There were four members in each group.

CONCLUSIONS

1. Groups seem assured of a much larger proportion of correct solutions than individuals do.
2. This seems to be due to the rejection of incorrect suggestions and the checking of errors in the group.
3. In groups of the size used here, more incorrect suggestions are rejected by another member of the group than by the individual who proposed the suggestion.
4. All members do not cooperate or participate equally in the solution of the problems.
5. In erroneous solutions (where it is possible to determine the exact point at which the first error was made) groups do not err as much as the average individual does.

SUMMARY

In conclusion I would like to point out briefly some similar aspects in all of the group discussion experience presented:

1. That the progress and benefits shown are not readily attainable by other methods of learning.
2. That many parents not usually vocal benefited by questions asked by the more vocal.
3. That the democratic group process has been adhered to.
4. That leadership has been carefully planned and carried out.
5. That new attitudes have been formed and new practices accepted by the parents as a result of informal discussion. Dr. Wishik referred to a mother who would not ask questions of the nurse because she thought the nurse did not want to be bothered.
6. That all presentations directly or indirectly stressed the need for less planned and directed discussion.
7. That all presentations sensed need for quicker opportunity to find the level of understanding and thinking of the group.

Group dynamics experts could add many more items to these few. These papers have given us a real goal to work for.

In closing, I would like to challenge not only health educators, but all concerned with health improvement, to use wisely and carefully more group technics and to constantly seek to improve and evaluate their use—the possibilities are limitless.

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Reporting on the Public Health Service

The 1952 report of the Public Health Service in the last year before its parent, the Federal Security Agency, became a cabinet department, is now available. In fewer than 100 pages it outlines the many faceted activities of the Service. The 16,000 employees of the Service during 1952 were engaged in more than 250 occupations. They represented a cut of about 25 per cent from the peak personnel of 1944 and about 6 per cent from the previous year. "Like other sections of the nation," says the report, "the Service has had to do a bigger job with fewer personnel, taxing both ingenuity and resourcefulness in using its available resources."

Among the new health problems the report mentions the chronic disease challenge. "To make the period of maturity more useful and beneficial" is suggested as one of the big jobs of "the half-century of the adult."

There is a brief outline of the Service's contribution to health programs in 16 countries under Mutual Security Agency or Technical Cooperation Administration sponsorship. Plans have been developed for health programs in 14 additional countries.

Gov. Ptg. Office, Washington 25, D. C.; 30¢.

What was it that induced the people to have a chest x-ray? Why did those who stayed home refuse to participate in the survey? Of course, no single, or simple, answers were found in this follow-up study. But it reveals to what productive use the answers can be put.

A Series of Evaluation Studies of X-ray Publicity Programs*

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WHEN a publicity campaign is run for a community x-ray survey, it is desirable to know how effective it has been, so that a better job can be done in planning the next campaign. The usual technic is to count the number of newspaper stories that were printed and the number of posters that were displayed, or to calculate the per cent of adults who had x-rays during the survey. The trouble with these technics is that they tell us nothing about the impact that the individual media had upon the community. We may find out that our publicity campaign should be improved, but we cannot ascertain what parts need the most work.

In Wayne County, Mich., which has about 700,000 population outside of the City of Detroit, a policy has been established of visiting every community with a mobile chest x-ray trailer every two years. Mass x-ray campaigns are jointly sponsored by the Wayne County Health Department, the County Medical Society, and the Tuberculosis and Health Society. Our association assumes a major share of the promotional efforts for such drives.

We thought that we did a fairly good job of health education and community organization until we began screening Wayne County communities for the second time in 1949. Attendance figures in these repeat drives jolted us out of our complacency. In community after community, participation in the chest x-ray programs fell off appreciably compared to previous drives.

Some worried health educators began to ask questions: Why? What are we doing wrong? How can we improve our technics?

As a result of these questions, a series of evaluation studies on what the public notices during x-ray drives was made. This article contains our findings on these investigations. Our results may not apply to another particular program, but I believe the facts will be of interest in what was learned and how we applied them to improve our campaigns.

Communities selected for study were Hamtramck and Highland Park with a population of 46,000 each, and Dearborn which is inhabited by 96,000 people. The time—the 1949 and 1950 chest x-ray campaigns in these communities.

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Under the supervision of graduate students at the University of Michigan Institute of Social Work which cosponsored the studies, volunteer interviewers were trained to ask certain questions of every tenth person entering the x-ray trailer and record the answers. Information was obtained on how people first learned of the program; what other media they noticed, and which source of information they considered most effective in bringing them out.

While this method gave us a fairly good indication as to what brought the people who came for their chest x-rays, it gave us no clues about the large number of people who stayed at home. Therefore, we set up follow-up interviews in selected homes in Highland Park and Dearborn.

These interviews were conducted by graduate students. They asked people who did not participate in the x-rays whether they knew of the chest x-ray campaign and how they had learned about it. In addition, they obtained reasons why people did not come for their x-ray. In Dearborn an additional survey was done in three high schools before and after the 1950 chest x-ray campaign. Using a test which contained 36 questions, this survey attempted to measure knowledge and attitudes about tuberculosis among the high school group.

Space does not permit me to go into any great detail to describe our findings. However, a few general and specific conclusions stood out which when applied to these same communities proved of tremendous value to us.

As we had expected, each of the three communities responded differently. In all of them newspapers were the most frequently mentioned source of information: three of every four listed newspapers in Hamtramck; six out of ten in Highland Park, and five out of ten in Dearborn—this, in spite of the fact that Dearborn has more local weekly papers than the other two communities. The most effective personal sources of information listed were the churches in Hamtramck, the schools in Highland Park, and home visits in Dearborn. Communities are different, even when they are located in the same county.

The only general conclusion we could draw was that our campaigns had played a part in influencing almost everybody who came for their chest x-ray. These drives featured local newspapers and leaflets for general information, and the churches, schools, and volunteer visits for personal messages.

An added advantage was that the interviews were taken by sections or neighborhoods according to the public locations of the x-ray bus. This permitted us to analyze the replies by sections. Let me mention a very striking example:

In one semislum area only 110 persons came for their x-rays on the day the mobile unit was located in this section. Eleven interviews taken revealed no home visits, no school contacts, only one newspaper. However, three of the eleven listed caretakers as a source of information.

We studied this clue with community leaders and health department officials before we launched another campaign this spring. Analysis showed that the area is mostly composed of rooming houses containing older couples. Most of these people are foreign born, coming from Eastern and Middle European countries where janitors and caretakers apparently are quite influential and powerful.

In this particular community, rooming houses are inspected regularly by health department sanitarians. Using this contact as an entry, a concentrated selling job was done with the caretakers in the area. They proved extremely effective in convincing their roomers. The result: 595 chest x-rays taken at the same location where only 110 turned

out two years ago in the same period of time. Applying what we learned, brought big dividends in this case.

Comparing responses of people who participated in the chest x-rays with those of persons who stayed home gave us additional clues. It was mostly a matter of having "reached but not motivated." Ninety-four per cent of the nonparticipants in Highland Park and nine out of ten in Dearborn knew of the program but did not attend. Fifty-eight per cent of the participants in Highland Park and 52 per cent of those in Dearborn had noticed something about the program in the newspapers. These percentages were almost identical among the nonparticipants, a fraction higher in Highland Park, and a fraction lower in Dearborn.

Another important difference between the participants and nonparticipants was that each person who came for his chest x-ray recalled an average of 3.2 informational sources in Hamtramck, 2.6 in Highland Park, and 3.8 in Dearborn. Those who stayed at home averaged 1.6 contacts per person in Highland Park. and 1.8 in Dearborn. Made aware of these facts, lay and professional leaders in these communities have intensified their efforts to reach every segment of the population, every individual family through many additional channels.

One of the most startling revelations, which all studies showed, was the inadequacy of our home visitation program. In each of these communities we worked with volunteer committees. They made provisions to cover every single home with a personal message. Yet of those who came for their x-rays, only 44 per cent in Hamtramck and Highland Park and 50 per cent in Dearborn remembered that their homes had been visited. Of the people who knew about the program, but did not come out, only 25 per cent in Highland Park and 22 per cent in Dearborn listed home visits.

It is this phase of our campaign which we have tried to improve most. Therefore, I should like to dwell on it a little more in detail. We were surprised to learn that home visits were made rather hurriedly and frequently not at all.

I remember a striking example which occurred during the Highland Park survey. I happened to stop by the mobile x-ray bus and eavesdropped as a volunteer interviewer questioned one of the participants. When the questioning was completed, the interviewer turned to me, quite disturbed, and said: "Isn't it disgusting? I called on this woman myself, and now she doesn't remember that someone visited her home."

On further questioning the volunteer revealed how she had conducted her home calls: she had knocked on the doors in the area assigned to her, and simply handed people a printed leaflet which emphasized that chest x-rays would be available in the neighborhood. There was *one* indication that a great deal of the intended educational message gets lost somewhere along the line.

Following the Hamtramck and Highland Park surveys, we had an experience which re-emphasized the importance of home visitations. It so happened that promotional efforts for x-ray campaigns got under way in two neighboring cities of 10,000 population each, at the same time. These communities are almost alike in their social characteristics. The x-ray publicity campaigns were alike with one exception. In one city, women volunteers met and worked out a plan for home visits. In the other community, all groups approached for this purpose seemed to be tired of the multitude of home calls they were asked to make for various drives. They felt that home calls by volunteer workers were unnecessary.

In this community, Boy Scouts were enlisted to distribute leaflets to every door. The results were striking—in the community where home calls had been

organized and conducted by adult volunteers, twice as many people came out for their chest x-rays as compared to the other city.

In further analysis of our home calling procedure, we discovered two flaws: (1) Volunteers received verbal instructions on what to say and how to say it at neighborhood meetings. However, there was not much chance for them to participate in these meetings. (2) There were always a number of workers who agreed to canvass their blocks, but did not come to the meeting. These were more apt to pass out handbills without a personal message.

To overcome the first deficiency our health education staff worked out some sketches, which are acted out at every meeting of volunteer home callers. These sketches present some of the arguments people in the homes might bring up and how they can be answered. Volunteers consider this great fun and it also gives them a chance to participate in the meeting.

Volunteers who do not attend the meeting are visited by a professional staff person, either the public health nurse or a health educator. This proves to be more time consuming, but is much more effective than relying on the neighborhood chairman alone to get the message across.

Improvements in this phase of the campaign still left us faced with the problem of what to do in sections where sufficient volunteers were not available. A clue was given to us in a study among high school students in Dearborn in 1952. This study showed that a sample of high school students were not only exceptionally well informed about tuberculosis but that this high level of knowledge increased following a community-wide chest x-ray campaign. It was also found that the students had a much better attitude toward tuberculosis as a disease and as a social problem, than adults.

As a result, we worked out a cooperative plan with the Dearborn schools preceding the 1952 x-ray campaign. Under this plan, groups of high school youngsters were trained as "stand-by" flying squads to be used after school hours when and where they were needed. I believe they enjoyed their active participation in this community project and contributed materially to its success.

Spot checks during the 1952 survey in Dearborn indicated that three out of every four persons who came for their x-rays were reached through home calls. Community leaders in Dearborn are also proud of the fact that participation increased from 18,000 in 1950 to 22,000 in 1952 in the same period of time. Average daily attendance in 1952 was 462, a record for our county. There were similar, even if not as spectacular, increases in other communities during their third round of x-ray campaigns. Undoubtedly analysis and improvement of our technics had something to do with this.

As health educators, we received quite a jolt to our professional ego by one fact brought out in all three communities: there were a number of people whose one and only contact with our campaign was when they saw the mobile trailer parked in the street. The number of people giving this response was higher in certain sections than in others, and higher in Dearborn than in the other two communities.

We believe, therefore, that in many instances actual location of the x-ray equipment has some part in influencing or reminding passers-by.

I remember two years ago, I went to visit the x-ray bus in Dearborn. It was supposed to be located at one of the high schools. I drove twice around the block, and was unable to find the equipment until I inquired in the building. It was tucked away in a central court close to a power outlet, but invisible from any of the surrounding streets.

We do not do that any more. If the equipment cannot be located on the street in plain sight of everybody, we suggest another site to the planning committee.

There is one other point which seemed important to us in assessing and reorganizing our programs: the effectiveness of our doctors in interpreting them. Relatively few people in all three communities named physicians as a source of information. Yet, those who did name doctors as one of several sources, almost always listed them as the most effective interpretative medium.

In the last two years, we have attempted to draw the private practitioner and the community dentist more actively into our programs. That is not always easy. Doctors are busy people. Nevertheless, using our findings as a selling point, we have been fortunate to find at least one in each community to give more than lip service to the campaign. They have not only been valuable as a contact with other physicians, but their prestige with some community groups has often meant the difference between participation and activity for such groups.

I have reviewed some of the facts we learned from these evaluation studies and have presented some examples of how we applied these facts to future programs.

We found that many people are reached, but not motivated. We realized that some media are excellent attention-getters, but in themselves are not sufficient to bring people out. Some important phases of our campaign, particularly the home-calling procedures needed strengthening. We have learned to draw the local high schools and their students more intimately into the campaign and have come to appreciate the role of the physician in interpreting the program. It has been of great benefit to us to be able to analyze our campaigns.

I am relating these findings, not because I believe that they can be used as such, but because they might prove applicable in a broader field. We know that communities differ, and what may hold true for Dearborn, may not apply to Detroit even though located in the same county.

I firmly believe, however, that as public health educators we must have countless questions in our minds as we go about our daily tasks of organizing, educating, motivating, and working with people in our communities. We have a responsibility, not only to raise and ask questions about our work, but also to try to find some of the answers for them. Let us leave basic research to the experts, but let us keep evaluating our own programs.

Some health educators have told me they wish that new programs and projects could be arranged with a sort of "built-in" evaluation procedure. Why not? There are resources to help one in almost every community where there are health educators.

More and more communities are "buying" health education as an integral part of their public health set-up. Let us be sure their investment brings results. Let us continue to raise questions about our programs, and take the extra time it requires to get the answers, even though it may mean changing some of our procedures.

Demonstrated here is the practicability of home care for even the most distressing of all cases, the terminal stage cancer patient. Was narcotic administration—as might be expected—the prime need? Was furnishing extensive hospital equipment for the home a stumbling block? By what agencies were the principal needs supplied? The answers are here.

A Pilot Study in the Home Care of Terminal Cancer Patients*

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FROM September, 1950, through August, 1952, a study was made to determine the feasibility and value of providing medical care for those patients treated at the hospital of the Woman's Medical College of Pennsylvania who were suffering from cancer, either in a terminal or very chronic stage; who were financially too poor to afford a private physician; who were too ill to go to the Out-Patient Department; or who could be aided medically at home as well as, or better than, in a hospital bed. The need for such continuation of the hospital's responsibility for the medical management of its indigent patients with cancer became acutely manifest shortly after a Tumor Clinic was established in September, 1948.

PERSONNEL AND RESOURCES

To meet this need, a half-time, recently graduated physician † interested in general practice was awarded a Fellowship in order to coordinate and provide medical care outside the hospital and to assist in the teaching of medical students in the care of terminal cancer patients. Included in the "team" was a part-time medical social worker who gave invaluable aid. Almost every member of the attending and resident staffs, and especially the Tumor Clinic staff, was called upon to assist in some way for advice, diagnosis, treatment, or referral. The Oncology secretary and Tumor registrar, the nursing staff, record librarians, pharmacist, laboratory personnel, and the administrators of the hospital and college gave assistance. The study was under the general supervision of the director of the Department of Oncology,‡ but the Departments of Surgery, Pathology, Gynecology, Radiology, Medicine, and Psychiatry gave active support.

The Soroptimist Club, Northeast Division, provided a $1,500 Fellowship for the Home Care Physician for the first year, and the Alpha Xi Delta National Sorority for the second. The Division of Cancer Control of the Commonwealth of Pennsylvania gave $700 also to the Fellow. Part of the $25,000 Under-

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graduate Cancer Teaching Grant given by the U. S. Public Health Service made possible the medical social work, the weekly Tumor Conferences and Clinic of two hours each, and other teaching media whereby patient, practicing physician, physician-to-be, and teacher received mutual benefit. The Woman's Medical College and Hospital provided a fund of $50 for drugs needed in an emergency as well as the basic and ancillary services. Contributions from five patients totaled less than $100. The Philadelphia Division of the American Cancer Society provided dressings, transportation, and, indirectly, nursing care for nine patients. Bedside nursing was given by the Visiting Nurse Society, which, through the Intensive Home Care Plan for private patients and physicians, also made available housekeeping, occupational and physical therapy services, nutrition guidance, friendly visitors, and so forth, for six patients. Hoffman-LaRoche, Inc., supplied a morphine-like drug, Dromoran; Smith, Kline and French Laboratories gave Dexamyl; the National Drug Company and others were generous with "samples." Several public-spirited women offered to visit the patients, and the United Order of True Sisters offered a service closet. The Department of Public Assistance and Philadelphia General Hospital cooperated. The Philadelphia County Medical Society and the Philadelphia Department of Health provided approbation.

METHOD

Patient Care—In order to obtain an initial case load, Tumor Clinic, Tumor Registry, and operating room records were searched. Every staff member was informed of the plan, and referrals were requested. Patients not returning for cancer follow-up were investigated. Not every patient admitted to the ward was evaluated as a possible candidate for home care, but many were, and this phase deserved expansion, for the resident staff was not always in a position to select suitable cases for the attention of the home care physician. It was not feasible to include patients from other hospitals in this study. The medical social worker and the physician cooperated closely. If in the hospital, the patient was interviewed, his needs assessed, and the home as a suitable place for continued care evaluated. Further suitability of the environmental conditions were determined at the time that the physician visited the home. Whatever aid the patient could receive from any source, whether the hospital or another community facility, was elicited. At times, rehospitalization, transfer to a nursing home, a relative's home, a private physician, or the Out-Patient Department was required. The "home" care was only a part of the over-all general care.

The number of visits and professional services rendered depended upon the patient's needs. Records were made in triplicate after each visit, and filed in the patient's general folder, in the Home Care file, and the other was sent to the referring person. The pertinent facts relative to the patient's cancer history were on file in the Oncology office as was a cross-reference, accession-identifying card file, but there was no separate "chart rack." Had a "unit file" for each patient been in operation at this hospital, all progress and related notes by the social worker and home care physician would have been included, thus reducing the number of records while maintaining a continuous history. Summary reports were made weekly and monthly. Monthly reports on patients visited by their nurses were received from the Visiting Nurse Society.

Teaching—While not completely separable from patient care, medical student teaching, nevertheless, was a distinct part of the plan. Each of the 95 senior medical students accompanied the home care physician at least once as part

of her Tumor Clinic assignment, and was given the opportunity to report on the patients at subsequent Tumor Clinic meetings, which were attended by nursing students, the social worker, Oncology personnel, and representatives from the major specialties. If an autopsy had been performed on such a patient, the findings were discussed, and photographs of the organs were projected. If warranted, a detailed analysis of the economic-environmental-emotional-social-physical factors involved in a "problem" patient's illness were presented by the student, and the psychiatrist, social worker, home care physician, other staff members and students would make recommendations. Furthermore, the home care physician was a member of the panel on "Terminal Care," which discussed cancer from that standpoint. Each student during her Tumor Conference assignment attended such a session. Students also included home care patients with whom they had contact on their cancer-reporting cards. By these means, the physician-to-be received a more complete picture of the patient with cancer, and obtained additional training in the general practice of medicine, including follow-up, health maintenance, and utilization of community resources.

This pilot study was originally conceived as a method of filling immediate and direct patient needs, but it was maintained and nourished as a service largely because it was also an excellent means of teaching medical students, and it satisfied the curiosity of Tumor Clinic staff teachers regarding the follow-up of cancer patients.

While it was not possible to include nursing and physical therapy students or others in training in allied subjects, expansion of "home care" as a service could make available additional teaching facilities.

RESULTS

For purposes of brevity and record, certain summary figures will be presented. It is realized, however, that numbers in themselves do not adequately describe adaptation of service to need, flexibility of program, nor even deficiencies and recommendations for improvement.

During the first year, 34 patients were visited, and 17 were added in the second year. Of the total of 51, five had died before the first visit of the home care physician. Of the remainder, 21 died, eight having been readmitted to the Woman's Medical College Hospital. Autopsies were obtained on seven. At the end of two years, seven patients were still on active home care, four having been seen for over one year. Five patients had been transferred to private physicians; 13 had become able to be treated as outpatients. One patient was visited in a home for the aged, another in a convent; five were in nursing homes; 11 lived in rooms; 20 lived in their own homes; 13 were with relatives. The daily case load usually varied from seven to 11, with a range of from one to 11. The number of visits totaled 439, one to 74 being made per patient, or an average of eight visits per patient before death, hospitalization, or other disposition.

Ten patients would have been entirely without medical care had not this hospital provided it. The degree of indigency varied from absolute in terms of Public Assistance and the hospital's ratings, to partial financial lack. Occasionally, a staff specialist referred a patient who was suitable for teaching purposes, needed further specialized treatment and staff consultation, and had records at the hospital, but whose long-term illness had severely impaired her finances. Such patients made small contributions to the drug fund, but, more important, they were highly appreciative of and satisfied with, as were all the other patients, the continuity of their medical care, and the assurance that help was available; for the home care physician, while not hav-

ing a regularly assigned co-worker, was always on call or could depend upon her fellow-physicians to answer for her.

The average age for this group of patients was 61 years, 84 per cent being over 50 years. Most women were between 50 and 69 years, while most men were in the 60–79 year age range. The over-all age spread was from 21 to 90 years. White patients outnumbered Negroes four to one, and 37 (over 70 per cent) were women.

The needs of the patients varied greatly. A death certificate sufficed for some; others needed daily attention. Transportation to the hospital for roentgenographic studies or treatment, transfusions, biopsy, special examinations, and so forth, was a real need. Extensive equipment for the home, such as special beds or wheel chairs, however, was not in demand, nor was occupational therapy prominently needed by this group. Nutritional supplements, hematinics, dressings, analgesics were frequently provided. Narcotics, however, were not so necessary as had been anticipated, for general supportive measures, close medical attention, good nursing, and the use of hormones, as in metastatic breast malignancy, seemed to reduce the need for the morphine syringe usually pictured with the terminal cancer patient. While most of the patients were in a terminal stage, a more hopeful aspect, that of prevention or early detection, was illustrated by the 21 year-old woman with cervical cancer *in situ*. Inasmuch as a home physician was available, she was asked to visit this patient because of her repeated failure to return for biopsy after two "routine" positive Papanicolaou smears. The physician was able to untangle the emotional aspects which had kept the patient from returning to the hospital; biopsy was performed; very early carcinoma found; adequate treatment instituted; and follow-up arranged.

With the exception of one patient finally diagnosed as "senility," and another with cardiovascular-renal disease, the remainder had been treated for malignant disorders, even though autopsy did not reveal that cancer was the actual and obvious cause of death in all cases. Tumor types were well represented for teaching purposes: Carcinoma of the uterine cervix (9), or fundus (6); breast (7); urinary bladder (4); skin (4); colon and rectum (4); prostate (3); pancreas (3); stomach (2); lung (1); parotid (1); tongue (1); vagina (1); vulva (1); and reticulum cell sarcoma (1).

An approximate total of 4,777 patient days were included in this two-year service. This figure is close to the number of "free days" given inpatients in one year at this general, teaching hospital of about 200 beds, having 6,000 inpatients, 21,000 outpatients and 200 patients with malignancy a year. While the average number of days per patient on home care is calculated to be 94, from one week to four months might have been spent by 18 patients in a hospital bed if the home care physician had not been available. Thus, 676 hospital days were made available to persons with acute illness or some other form of chronic disease, such as all cardiovascular ailments, arthritis, or diabetes. At the rate of $18 a day,[1] 676 days would cost a hospital $12,000. Instead, the home care physician covered 2,856 miles in her automobile in order to visit the patients outside of the hospital.

The patients, students and staff approved of the Home Care Plan, and it fitted into the general activities of the hospital.

DISCUSSION

While home or continuation care programs had been reported upon by Dr. Weiskotten,[2] of Syracuse, and Dr. Bluestone,[3] of New York, and this study was influenced by them, nevertheless, no extramural care for indigent, terminal

cancer patients, under the auspices of a hospital, existed in Pennsylvania at the time this service was begun. Since 1950, however, in Philadelphia alone, home care for heart disease patients has been provided by both the Heart Association of Southeastern Pennsylvania and the Children's Heart Hospital. The Visiting Nurse Society, which had for a long time provided home nursing service, undertook a pilot study in comprehensive home care for patients who had private physicians.[4] In July, 1953, Presbyterian Hospital plans to provide residency training in General Practice, which will also include home care for all types of patients.[5] In recent years, the New York Municipal Hospital System has provided home care for its patients.[6] George Washington University and Michael Reese Hospital in Chicago [8] have extended home medical care to cancer patients.[7] Home care for all medically needy persons is being contemplated in Boston,[9] and in Denver plans are being made for the expansion of the home care service for indigents rendered by the Denver General Hospital, and the inclusion of residents, interns, and medical students in the program.[10, 11]

When patients are well selected for home care service, much of the cost of providing daily maintenance or uncomplicated nursing services is absorbed by the patient, family, or a community agency, thus reducing the direct cost to the hospital. But unless home care is considered as a special form of care and in need of selective application, the quality of medical care may be sacrificed in favor of emptying hospital beds of "indigent chronics." Furthermore, each community may not have the facilities nor the real need for extension of hospital care to the home. This may be true of rural areas.[12] Although Dr. Ginzberg [13] has indicated reduction in the cost of hospitalization to the patient if home care programs were more widely used, it is conceivable that the inappropriate use of home care might be accompanied by deficits and increased costs. With greater emphasis upon the enlarging population of aged and chronically ill persons, and the changing concepts of medical education regarding the patient as a whole, the inclusion of a patient's home in the entire medical management plan is being considered more frequently.[14-20] There may develop, however, an inadvertent disregard for the necessity of interested, adequate, and imaginative leadership, careful and coordinated planning, adequate resources for the giving of high quality, even though limited, needed care in a financially sound manner, and of securing cooperative support for the execution of the service.

Basic requirements for a valuable home care program have been stated by Dr. Shindell.[21, 22] Each hospital must decide what its best contribution can be. "Home care" is only one part of continuation care from the standpoint of the hospital, some of the others being follow-through of patients from ward to clinic, to place of employment, and to the home; rehabilitation; follow-up in nursing or convalescent homes, institutions for the aged, and the like; the use of continued contact for the prevention, earlier detection, and treatment of other diseases in the patient and the family; increased cooperation with the private physician whether in terms of reports on the patient during or after hospitalization, or in terms of consultation *before* the patient is actually hospitalized; participation in voluntary and official community planning for over-all or comprehensive health service.

CONCLUSION

Favorable results were obtained after a two-year trial of extramural medical care of indigent patients with cancer. The program was also valuable in the teaching of medical students and others. It is recommended that continuation

care be undertaken for well selected patients by as many hospitals as possible, especially for one or all types of prolonged illness.

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Fourth Roberts Fellowship Award

The 1953—fourth annual—Mary M. Roberts Fellowship Award of the American Journal of Nursing Company has been made to Regina Theresa Adams, instructor in surgical nursing at Seattle University, Washington. The Mary M. Roberts Fellowship was established to aid qualified nurses to acquire and develop writing skills so that they might better interpret nursing to nurses, prospective nurses, and the general public in both professional and lay publications. The grant provides between $2,000 and $4,000 to help defray the over-all expense of a year's study at a recognized college or university of the recipient's choosing. Miss Adams will study at the College of Journalism, Marquette University, Milwaukee.

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RECRUITMENT AND TRAINING OF HEALTH OFFICERS

IT is clear that the shortage of medical candidates for administrative health posts constitutes a very serious problem. (Only about 200 medical graduates are candidates for the M.P.H. degree each year.) As frequently pointed out in these columns, a solution requires two approaches. In the first place, administrative health posts for medically trained persons must be made more attractive by providing higher salaries and by developing health units of at least 100,000 population, so as to furnish a suitable challenge to qualified and imaginative candidates.

A second approach involves interpretation of the real potentialities of modern public health service to the medical undergraduate and from this standpoint the Conference on Preventive Medicine in Medical Schools held last November at Colorado Springs was of major importance. Seventy-three schools of medicine were represented, including the presence of 26 deans.

As Dr. Lloyd Florio of the University of Colorado School of Medicine, who served as chairman of the conference, has pointed out, "Departments of Preventive Medicine are not directly concerned with recruitment of medical students for public health services but rather with the development of preventive and sociological concepts which should permeate the day-to-day work of the practicing physician. The character and content of instruction will powerfully influence the attitude of the student toward such services."

If he learns actually to practice "preventive" medicine, the student will be much more likely to appreciate the opportunities offered to the modern health officer for leadership in the integration of the work of the private practitioner in the total community effort to promote health in its widest sense.

Reports were prepared for consideration by the conference by five subcommit-

tees on the role of a department of preventive medicine in: (1) curriculum content and methodology, (2) interdepartmental relationships, (3) comprehensive medical care, (4) community health activities, and (5) research.

Considerable emphasis was laid on the necessity of helping the medical trainee to think not only in terms of his responsibility to the individual patient but to the community as well.

Alan Gregg illustrated this point well by asking what a student would be likely to think about if he were dealing with 20 cases of septic sore throat in a small town where two dairy workers had come to the hospital for treatment. He might feel that his task was just to treat these two individuals. "But maybe, in the light of his knowledge, he may realize that he must get after the dairy too. This makes him an enemy of disease, and he has a concept of disease, and of his responsibility as a physician. This is a formidable discovery for any student to make."

It is clear that truly "preventive" medicine cannot be taught primarily within hospital walls. The outpatient clinic, if adequately coordinated with other departments, can go far in developing a broader view of social forces and how they affect people's health and their reactions to sickness; participation in home care programs, where students come to understand the many forces operative in the treatment and prevention of disease, can reveal to the future physician the real significance of the burden of disease on the community.

Such participation over a prolonged period is necessary for the development of a truly preventive viewpoint. A family must be visualized as a unit and all those forces—social and economic as well as hygienic and medical—which influence family health must be evaluated. At the Colorado Springs conference the "engagement" between the social scientists and the teachers of preventive medicine was announced. It became clear that social scientists on medical faculties can help students see the importance of using the community in research studies, making it possible to observe sick and well populations in order better to delimit the forces that have a bearing on sickness and health.

Dr. John Hubbard, in reviewing the Conference on Preventive Medicine in Medical Schools,[1] summed up the conclusions of the Committee on Comprehensive Health Care by saying that when a medical student participates in a well designed family health service or other community-oriented teaching program:

1. He prepares for his eventual practice as he helps serve a patient in all phases of medical care—preventive measures, treatment and follow-up—whether the patient is in a hospital, at home, or ambulatory.
2. He learns that preventive medicine takes a large slice of a practicing physician's time, thought, and ingenuity. Seeing a child with rheumatic fever in the setting of an overcrowded home and large family may sharpen his understanding of the importance and difficulty of getting preventive measures adopted under adverse social conditions.
3. He frequently sees early illness and the ways in which it strikes.
4. He learns to deal with the day-to-day emotional problems of the patient.
5. He comes to understand and appreciate the patient as a member of a social unit.
6. He sees at first hand the way the environment affects a patient's health: the effect of low income and poor housing.
7. He learns about organized community services which a physician should know how to use to benefit his patients or their families; he sees the gamut of official and voluntary agencies as they touch on the lives of his families—aid to the blind, visiting nurses, school speech classes, vocational rehabilitation, sheltered workshops, and many others.
8. He watches and learns to practice the art of interprofessional relations; he works in a team, perhaps including several medical specialties as well as nursing, medical social work, and other related services. This team in turn may help a single patient deal with professional

people in various agencies ranging from an official city health department to a school for children afflicted with cerebral palsy.

9. He sees the true character and significance of the burden of disease in the community—the prevalence of respiratory disease, mental and chronic illness—not simply the severe and often less common acute illnesses seen in the hospital.

10. Through all these experiences he comes to appreciate the practice of medicine as a social responsibility.

Such an educational program as this is primarily designed to produce good doctors; but it should also produce doctors far more likely to be attracted to the public health services themselves than have those who have been more narrowly trained in the medical schools of an earlier day.

It is just forty years since the American Public Health Association held its meeting, also in Colorado Springs, in the year 1913. A review of the proceedings of this 42nd Annual Meeting of the Association prompts the observation that preventive medicine and public health really have become of age in this long generation. Those who participated forty years ago can well be gratified at this second Colorado Springs conference.

1. Hubbard, John P., and Clark, Katherine G. Conference on Preventive Medicine in Medical Schools. *Medical Education* 28, 3:43–48 (Mar.), 1953.

MAGIC BULLETS

FOR a long time public health workers have dreamed of the possibility of preparing substances which would destroy disease germs within the human body without injury to the tissues of the body itself. The drama of progress along this line has had three acts, each one involving a radically different approach to the problem.

The first step along this line was the discovery of quinine for the treatment of malaria. No one at the time suspected that quinine was a germ killer or that malaria was a germ disease, but we know now that such is actually the case. The presence of a drug for controlling malaria in the chinchona trees of South America was obviously incidental. Mosquitoes do not bite trees and stimulate them to produce an antibody. Nevertheless, when the Jesuits introduced their bark into Europe in the seventeenth century, it was first hailed with acclaim and supported with the full power of the papal hierarchy. In the absence of adequate differential diagnosis the drug was used for all sorts of fevers, and when the sufferer happened to have typhus or plague its failures brought disrepute. Through the efforts of an English quack physician, who cured Charles II of England and Louis XIV of France, "the bark" was re-established; and continued to be our primary weapon against malaria until twenty years ago.

The concept of magic bullets came into full life and vigor with the establishment of the germ theory of disease in the nineteenth century. This time the active human mind was at work, not on the accidental biochemistry of a forest tree, but on chemical compounds which seemed to offer promise of bactericidal action. These compounds were modified by adding or subtracting side-chains and each in turn was tested for its germicidal power. It is probably not an accident that the most outstanding advances along this line have been made by German scientists displaying characteristic Teutonic patience in the endless modification of chemical formulas and the exhaustive testing of the modified substances produced. By such methods

Ehrlich gave us salvarsan, the first synthetic drug devised with a specific objective of producing bactericidal effects in body tissues.

Twenty years ago other groups of German chemists produced the sulfa drugs, and still others—following the same technic—developed the new antimalarial drugs, atabrine and plasmochin. Such synthetic drugs have been so extraordinarily successful in destroying various stages of different types of malarial parasites that the use of quinine has been relegated to those areas where its use happens to provide marked economies.

The third act of the drama has been more brilliant than either of the first two, and here the activities of mold fungi have replaced and greatly improved upon the high skills of the organic chemist. John Tyndall observed and recorded the antagonistic effect of molds upon bacteria in 1881; but, lacking fertile soil in which to grow, this observation was ignored and soon forgotten. When Alexander Fleming reobserved the same phenomenon in 1928 the possibilities of practical application were more obvious and he soon demonstrated that "antibiotics" produced from penicillium could be used as highly effective "magic bullets." When S. A. Waksman and his associates found that not only the common blue mold but many other mold fungi growing in soil had similar antibiotic properties, the stage was set for one of the greatest advances in the history of public health.

During World War II, under the stimulation of Florey and E. B. Chain, an extraordinarily fruitful cooperation between English and American scientists and manufacturers made possible the development of practical methods of cultivating molds on a large scale and extracting the "magic bullets" which they produced; and today we have almost sure-fire remedies against scores of microbial diseases.

It may be humiliating to confess that the creative imagination of the mold fungus has proved so superior to that of the human mind. After all, however, the molds were competing with bacteria in the soil long before the human race had come down from the trees and it is not surprising, perhaps, that in the hard school of evolutionary experience they should have perfected these powerful weapons of defense.

A STIMULATING MONTHLY BULLETIN

THE monthly bulletins of our state departments of health are becoming much more than just "house organs" or media for disseminating health education to the general public. From a formidable pile on his desk the editor unearthed the *Connecticut Health Bulletin* for March, 1953, which contained at least two articles worthy of publication in any scientific journal and containing bibliographical material essential to their fields.

One of these reports, by Mila E. Rindge, on "Infectious Hepatitis" includes a competent epidemiological study of an epidemic at a summer camp last year. This epidemic was associated with grossly insanitary conditions and was spread from a single boy who came to the camp during the incubation period of the disease. After 19 cases had occurred the epidemic was apparently cut short by treatment of the rest of the children with gamma globulin. This problem is a serious one, the number of cases of infectious hepatitis reported in Connecticut having risen from two in 1948 to 75 in 1952; and it is already evident that the figure will be very much higher for 1953.

The same issue of this bulletin contains an admirable review by LeRoy W. Van Kleeck of "Digested Sewage Sludge as a Soil Conditioner and Fertilizer." He points out that sewage sludge by itself is not a complete fertilizer, being deficient in potassium. It does, however, provide nitrogen, some phosphorous and minor elements, and has very special values in its effects on physical soil structure. We commend this article as valuable ammunition to our friends in the field of sanitation.

Do not file away the health bulletins which reach your desk without seeing whether they do not contain contributions of fundamental scientific significance.

MARK YOUR BALLOT!

THREE years ago, the Association provided for the election of members-at-large of the Governing Council by means of mail ballots cast by members and Fellows. The main purpose was to permit participation in the election of candidates by those unable to attend the Annual Meeting and yet desirous of sharing in the choice of members of this highly important body. To a considerable extent, this purpose has been realized—several thousand ballots were cast last year, instead of a few hundred when ballots were received only at the Annual Meeting.

However, based on the percentage of eligible voters who "exercised their franchise" (as the pundits are wont to put it after a general election), the showing is not impressive. Last year only a little over half the members and Fellows voted for candidates for Elective Councilors. With a little less interest a minority of the Association might have made the choices.

This is not a good record for an association so largely made up of people in government service and presumably possessing an intelligence and a sense of civic responsibility somewhat higher than that of the average citizen. It is true there is little if any electioneering, no speechmaking, no parades, but the duty to participate is there. The Governing Council needs members who are sound thinkers and who are able and willing to express their opinions on the many issues that come to the Council for decision; men and women willing to devote time to the reports of the various committees and the affairs of the Association generally; who will not only be faithful in attendance but will participate actively, when the occasion calls for it.

It is the business of Fellows and members to see that such candidates are nominated and to vote for them when the ballots are sent out. It is to be hoped that more—many more—will demonstrate their interest this year, and in future years, than in the past. This year members and Fellows in good standing will receive their ballots during the middle of August.

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

OLDER PERSONS IN THEIR OWN HOMES

"To help community groups bring about more adequate living conditions for older people" is the announced single purpose of *A Home in the Later Years*. The scope of the problem, the advantages of and standards for small homes or apartments of their own for the aging, and the need for services that will make it possible for those not wholly self-sufficient to remain in their own homes, are among the subjects discussed. The authors emphasize recognition "that an elderly person should have the benefits of independence to the fullest feasible extent."

The booklet is a companion to *Community Action for the Aging* published in 1951, also by the New York State Association of Councils and Chests through its Committee on Shelter Care for the Aged and Infirm. The State Charities Aid Association provided secretariat and editorial and production assistance. 105 E. 22nd St., New York 10. 25¢.

MEDICAL CARE IN MARYLAND

After six years of operation the pioneer experience of the Maryland State Health Department in the administration of a medical care program for the needy is evaluated in the *Report of the Committee to Review the Medical Care Program* recently published by the Maryland State Planning Commission. This review originated in a resolution passed by the State Senate in 1951 requesting a study to determine the effectiveness and further necessity of the program. Included also is a review of the medical care plan of the Baltimore City Health Department which is operated along somewhat different lines.

Of particular interest to the public health profession are the observations of health officials regarding the impact of the medical care program on public health work, and those of the medical profession on the preventive aspects of the program. Another interesting observation is the contribution that the program has made toward maintaining physicians in at least one rural area.

Of even greater significance is the sense of security that the program has given to the aged and chronically ill, in so far as medical services are concerned, as well as the program's potentials for restoring to social productivity persons on relief because of illness. The report is available from the Maryland State Planning Commission, Committee on Medical Care, 100 Equitable Building, Baltimore 2. 50¢.

MEDICAL GROUPS IN CALIFORNIA

This report is particularly timely in view of the emphasis placed on group practice in the recently published report of the President's Commission on Health Needs of the Nation. Based upon questionnaires and field visits, the study compares group practice in California in 1950 with the national pattern observed in the 1946 survey conducted by the U. S. Public Health Service.

In contrast to the national pattern, medical groups in California tend more often to be urban, larger in size, and younger; they are also found to be more frequently associated with hospitals and prepayment plans. As elsewhere, the partnership form of organization and the salary method of payment predominate.

An interesting finding is the relatively small proportion of groups that conduct

such essentially educational preventive services as well-child conferences and health education, in contrast to the high proportion that provide immunization, routine laboratory procedures, and periodic physical examinations. The article also analyses both the accomplishments and the shortcomings of the medical groups in terms of the potentials offered by this type of practice.

E. Richard Weinerman, M.D., and George S. Goldstein are co-authors of this 28-page report published by the University of California School of Public Health, Berkeley 4, Calif. A briefer version appears in *California Medicine* 76:383–388 (June), 1952.

NUTRITION, LOCAL CUSTOMS AND FOODS

Impressions of Nutrition Habits in the Virgin Islands, by Trandailer Jones, director of the Nutrition Service, provides 54 pages of fascinating reports and illustrations in a sensible and practical approach to local nutrition problems. The methodology has application to many parts of the United States as well as other areas. The friendly and skillful weaving in of local habits and beliefs makes it delightful for the outside reader and hopefully more acceptable in the Virgin Islands Nutrition Division Virgin Islands Department of Health, St. Thomas.

CITIZENS WORK FOR FLUORIDATION

In support of a bill in the Connecticut Legislature "to allow and regulate the fluoridation of public water supplies for the prevention of dental caries," the Hartford Citizens Committee for Fluoridation has prepared and distributed *Drink Away Tomorrow's Tooth Decay with Fluoridated Water.* It includes a copy of the bill, a list of fluoridation endorsers, expert testimony on its value, United States maps showing 575 communities that fluoridate their water supply, as well as the thousands in which there is natural fluoridation, rebuttals of stock arguments against fluoridation, and a brief bibliography. It is an excellent background document on the issues involved in a fluoridation program. The Citizens Committee for Fluoridation, 27 Forest St., Hartford, Conn. No information as to out-of-state distribution.

UNIQUE CENTENNIAL CELEBRATION

What is reported to be the first fully equipped mobile therapy unit in the United States for the home treatment of needy patients afflicted with arthritis and rheumatism, was recently presented to the Eastern Pennsylvania Chapter of the Arthritis and Rheumatism Foundation. Presented by the Beneficial Saving Fund of Philadelphia in honor of its 100th anniversary, the unit is making physical therapy at home possible for patients who are unable to obtain it otherwise. Care will be administered under the Visiting Nurse Society of Philadelphia.

FARMVILLE'S DISAPPEARING DOCTOR

In a popular pamphlet of 14 pages, John H. Lane, Jr., assistant professor of rural sociology, University of Missouri, analyzes the present problem of doctors for rural areas, with particular reference to Missouri. *What Has Happened to the Country Doctor* makes clear how and why "the horse and buggy days are gone." But it seems a little sparse in the "what to do" for the rural community that has lost its doctor. To be sure a few illustrations of what other communities have done are suggested. The three specific prescriptions are:

1. Lend active support to all efforts to improve the health of your county.
2. Support the work of your county citizens health council, if you have one. If you have none, help organize one.
3. Try hard to keep in good health.

But the first prescription is diagnosis, namely, knowing just what is needed. Agricultural Experiment Station, Uni-

versity of Missouri, Columbia Bulletin 594. Free.

WORTH ACQUIRING

What a Good Local Public Health Department Could Do for You is one of the tools prepared by the Pennsylvania State Health Department for use in the present citizen effort in the state to bring community health services up to modern standards. What makes it somewhat unusual is the series of explanations as to what a good local county health department will do for—a parent, a doctor or dentist, a farmer, a business man, a worker, an employer, a school teacher, a public official, a public health employee, and a taxpayer. It is well printed in color and interestingly illustrated. It should be useful for widespread distribution among Pennsylvania citizens and should be suggestive for those in other states with responsibility for getting public understanding of the need for community health services. Pennsylvania State Health Department, Harrisburg.

Multiple Sclerosis is designed both for the physician and layman as an introduction to what to do when one meets or has multiple sclerosis. The well produced pamphlet was prepared by the National Multiple Sclerosis Society in cooperation with the National Institute of Neurological Diseases and Blindness of the National Institutes of Health. It starts with the British nobleman, D'Este, in 1835 and an English and a French doctor, the first suffering from the disease, the other two studying it, all unknown to each other. There are chapters on symptoms, diagnosis, treatment and rehabilitation, research, and self-help. This is a valuable pamphlet for the public health worker, who is often in a quandary about next steps when he meets multiple sclerosis. National Multiple Sclerosis Society, 270 Park Avenue, New York 17.

Heart Disease and Pregnancy and *Food for Your Heart* are two new pamphlets being distributed by the American Heart Association and their state and local affiliates. The first reassures young women with heart disease that they can bear children safely by following their doctors' instructions. The second is a diet manual for patients and physicians giving reducing and low sodium menus as well as a table of the sodium content of common foods. American Heart Association, 44 East 23rd St., New York 16.

Democracy Begins in the Home is the latest of the Public Affairs Pamphlets, now numbering nearly 200. The author, Ernest Osborne, professor of education, Teachers College, Columbia University, suggests that both authoritarian parents and those who "do everything" for their children will end up making them unprepared for adult roles as responsible citizens. A good item for the mental health education kit. Public Affairs Committee, 22 East 38th St., New York 16; 25¢, reductions on quantity orders.

Let's Have Clean Water is an educational kit prepared by the Public Health Service for citizen groups in planning stream pollution control programs. It is made up of seven pamphlets, including a chairman's guide and a general discussion of water pollution in the United States. Illustrated liberally with charts and tables, the pamphlets are designed for distribution to the average citizen and also to school children. Gov. Ptg. Office, Washington 25, D. C.; $1.25.

Diagnosis of Congenital Cardiac Defects in General Practice is a handbook designed for general practitioners and pediatricians to clarify the function of the family doctor in the diagnosis and management of congenital cardiac defects. It emphasizes the need for

caution in advising on cardiac surgery before a definite diagnosis by a specialist. It was written by Regina Gluck, M.D., assistant professor of pediatrics, Bellevue Hospital, for the American Heart Association which, with its local affiliates, is distributing it. 44 East 23rd St., New York 10.

Selected Sources Of Free And Inexpensive Information Concerning Vocational Rehabilitation—A Bibliography has been compiled by Lynn L. and Lillian L. Ralya, counselors in the Counseling and Testing Services of the University of California Extension at Los Angeles. The selections were based on suitability for the use of beginning readers but bibliographies listed also provide for the more advanced readers. Available from Compilers, 907–14th St., Santa Monica, Calif.; 25¢.

ANNUAL REPORTS

The *1952 Annual Report, American Cancer Society* is described in part "as a source book on the cancer control movement for libraries, medical schools, research institutions, research scientists, medical and philanthropic foundations, science writers, the press and radio." Particularly valuable as a reference source is the 12-page chapter on research, a well presented story of the present state of cancer research and its historical background.

In the past eight years the society has spent nearly twenty-five million dollars in cancer research, approximately one-half in grants-in-aid for specific research projects in universities and scientific institutions, more than ten million for research institutional grants, and more than two million for fellowships and scholar grants.

The report is unusually well done from the production standpoint with good clear type, excellent photographs, and well planned graphic presentation. Its fund-raising appeal is based upon dignified presentation of fact rather than upon embroidered "sob" stories. National Cancer Society, 47 Beaver St., New York City.

1952 Annual Report takes note of the sixth anniversary of the Health Insurance Plan of Greater New York. It is a brief report, effectively presented with good typography, graphing, and paper. Among the facts it emphasizes are that 79 cents of every premium dollar was used for medical services to the insured; that the number of non-municipal firms enrolled has grown from 12 in 1947 to 438 in 1952; that 400,000 persons are now enrolled; that 79 per cent of all physicians' services were given in doctors' offices or centers, and that nearly half of all professional services are given by family physicians, the remainder by specialists. Health Insurance Plan of Greater New York, 7 East 12th St., New York 3.

Public Health, the third annual report of the Omaha-Douglas County (Neb.) Health Department, reminds the citizens, who represent farming, commerce, and industry, of the oft quoted Disraeli statement that, "public health is the foundation on which rests the strength of a nation." The report is short, factual, well printed and interestingly illustrated with photographs, charts, and live drawings. In the third year of this joint city-county health department a new health center was completed, "the full cost of construction of which was borne by local governmental agencies." Edwin D. Lyman, M.D., is the health officer.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Food for Life—*Edited by Ralph W. Gerard. Chicago, Ill.: University of Chicago Press,* 1952. 306 pp. Illus. Price, $4.75.

There are few books in science with the refreshing originality of organization and language of *Food for Life,* written by six leaders in nutrition, physiology, biochemistry, and medicine and edited by Dr. Gerard. Yet this book is not a popularized version of nutrition designed for the casual reader, but a strictly scientific, though short, presentation of the principles involved in understanding the nutrients in food and the use of food by the living cell. The transition from the food requirements of the cell to animals and man is made logically and with equal clarity and conciseness. The final chapter which presents a world view of nutrition is a suitable climax for a well written story.

Although not written for the casual reader, *Food for Life* would be understood by any lay reader ready to be challenged and able to read with intelligence. The language is clear and the delightful illustrations effectively supplement the written word, giving liveliness and charm to the book. No attempt is made to present a system of dietetics. However, if supplemented by a simple manual of dietetics, this book should be effective as a text for the survey or nonmajor type of nutrition course offered in many colleges. However, its value is greater than that of a text (for which it was not designed), since it would be stimulating reading for any thinking person interested in understanding the role of food in supporting life.

Only one unsatisfactory note was found. A short reading list is appended which includes the cookbook written by Adele Davis. Since many accurate and conservative cookbooks are available, it seems unfortunate that the authors would introduce the essentially faddish propaganda of Miss Davis in a work scientifically sound and delightfully written. MARGARET A. OHLSON

Neomycin—*By Selman A. Waksman. New Brunswick, N. J.: Rutgers University Press,* 1953. 219 pp. Price, $4.00.

This book of approximately 200 pages by Dr. Waksman and collaborators is interesting reading. It is amply illustrated with charts and graphs and contains a bibliography of over 200 references. The discovery, extraction, isolation, and clinical evaluation of the antibiotic is fully discussed. The first portion of the book is concerned with methods of isolation and screening for antibiotics. It is believed that too much detailed information concerning cultures similar to or identical with *S. fradiae* is given, which will be boring to anyone other than a mycologist. On the other hand, very valuable information is presented on the production, extraction, and the isolation of neomycin. The chapter on the "Activity of Neomycin in Experimental Animals" is enlightening from the standpoint of toxicity as well as its effects on the bacterial flora of the intestinal tract following oral use. It is well that this chapter precedes the one on clinical effects, as the reader is forewarned of its limitations and dangers when the antibiotic is given therapeutically to man.

This book can be well recommended (with the exception as noted above) to those interested in the field of antibiotics, as it tends to emphasize the enormous bridge between the discovery of an antibiotic and its application with impunity to man. HENRY WELCH

International Technical Assistance —*By Walter R. Sharp. Chicago, Ill.: Public Administration Service,* 1952. 146 pp. Lithoprinted. Price $2.50.

This book is destined to serve a very useful purpose by cataloging the multiple technical and economic aid programs, agencies, and objectives. Hardly adequate recognition is given in the opening section to religious, philanthropic, and commercial technical assistance programs antedating Point IV, in view of the many lessons which their experience offers. The second section is devoted to recent legislation and administrative history of United States bilateral programs, i.e., Point IV, Mutual Security Agency (previously ECA), and the lending agencies. Considerably more space is devoted to the aid programs of the United Nations and its specialized agencies, and a separate section on regional programs under multilateral sponsorship is included. The study concludes with relatively shorter attention to "interprogram planning and coordination," a selected bibliographical note, a glossary of abbreviations, and an index.

Generally, Professor Sharp has treated multilateral programs and agencies more sympathetically than the bilateral ones. Both types of agencies had, at the outset, in December, 1951, when Professor Sharp wrote, and still have in early 1953, a series of "growing pains." These include uncertain approaches to uncertain governments in many cases, extreme shortages of national counterpart technicians, long delays in recruitment of high-level technical advisers, lack of an agreed concept of the contribution of several types of technicians to economic development, failures in planning and in coordination, and initial slowness of host governments to meet local logistical requirements. These problems have been and are being met, if slowly, on both sides, and the several agencies involved are coming rapidly to the view that they do not have separate or independent programs in any country. Rather, they are merely temporary instruments of a single program, that of the host country.

Professor Sharp makes it clear at the outset that his study and recommendations are based wholly on published documents and on conversations along the New York-Washington axis. This handicaps his treatment of such problems as coordination and relationships, the effectiveness of which can only be determined in the field. It has similarly obliged the omission of any discussion of the critical issue of national acceptability of technical assistance, its methods, terms, and results.

Despite these limitations, this over-all inventory tops the "must" list for professional personnel interested in international health programs. The very publication suggests how badly our literature needs a detailed account of the role of public health in international technical assistance and the contributions which health has made and can make to national economic development.

HOWARD M. KLINE

Protein Metabolism, Hormones and Growth, A Symposium — *Edited by William H. Cole. New Brunswick, N. J.: Rutgers University Press,* 1953. 80 pp. Price, $1.50.

Six papers are included in this symposium: Effect of Protein and Amino Acids of the Diet on the Endocrine System, by Leo T. Samuels; Relationships Between the Thyroid and Protein Metabolism, by James H. Leathem; Some Aspects of the Protein Anabolic Action of the Androgens, by Charles D. Kochakian; Relationships Between the Adrenal Cortex and Protein Metabolism, by Frank L. Engel; Effects of Growth Hormone on Metabolism of Nitrogen, by Jane A. Russell; and Hormonal Regulation of Human Growth, by Laurance W. Kinsell.

Each paper presents experimental studies against the background of other contributions in the literature. The book will be especially interesting to those concerned with these aspects of chemistry, physiology, and nutrition.

A. HUGHES BRYAN

Collegiate Education for Nursing—*By Margaret Bridgman. New York: Russell Sage Foundation,* 1953. 205 pp. Price, $2.50.

An excellent book of vital and timely interest to nursing, higher education, the medical and allied professions, hospitals, and the public. It is exceptional for the imaginative thinking and creative writing with which Miss Bridgman has drawn an intensely interesting, provocative and withal, fair picture of the present scene in historical perspective. The critical deficiency in nursing services is analyzed perceptively and the factors in the equation and their interrelationships treated philosophically and realistically. Most helpful are the discussions of the hospital school; baccalaureate curricula, patterns, approved and unapproved types, the major in nursing, contributory sequences, policies and problems; the potential role of junior colleges, and essential conditions for establishing a baccalaureate program.

With impartiality she presents up-to-date facts from visits to some 80 colleges and illuminates them graphically. Her purpose "to contribute to better understanding of some aspects of a complex situation from the particular standpoint of educational responsibility and policy," is fulfilled. No words are minced in placing the main responsibility, at this juncture, squarely on higher education for providing opportunities and maintaining standards while, at the same time, she enjoins nursing to critically examine its traditional attitudes, values, and patterns. New goals and fearless experimentation will make possible the development of collegiate nursing education with nurses enjoying the same privileges and rights as other students and learning through an integrated, well balanced curriculum. Since "advanced professional preparation is the keystone of the educational arch and the focus of the most urgent qualitative demand," the confusion in supplementary programs both on the bachelor's and master's level, must be resolved through rethinking and reconstruction in terms of needs, resources, and coordinated planning.

The author states problems and issues so succinctly that the inadequacy of our approach is only too clear—to mention a few, the difficulty of trying to meet a wide variety of functions through one type of education, the resistance between groups and within groups toward continued growth of their members, and the addition of academic subjects to hospital schools through which they hope to become a part of collegiate education. She believes that "in a comprehensive view of the situation apparently irreconcilable extremes of opinion will be recognized as complementary rather than antithetical, and measures advocated by different groups may become parts of a total plan acceptable to all."

MARY C. CONNOR

Demographic Yearbook 1952—*United Nations. New York: Columbia University Press,* 1952. 518 pp. Price, $7.50, cloth; $6.00, paper.

This volume represents the most up-to-date and comprehensive collection of international population and vital statistics that is available at the present time. It includes recent population estimates for every area of the world, including 1951 estimates, and a complete compilation of census totals for all areas of the world from 1850 up to and including results from the recent national censuses of 1950–1951. There are population figures by important characteristics,

such as age and sex, and major cities and civil divisions within countries. Included also are birth and death rates and the details of these vital statistics by age, cause of death, and other variables.

This series provides a background for the *Annual Epidemiological and Vital Statistics Report* published by the World Health Organization. This series of the Statistical Office of the United Nations Department of Economic Affairs should be found in every good library along with similar publications of WHO. These are tangible results of the very comprehensive studies undertaken by the UN as a foundation stone for world peace.

REGINALD M. ATWATER

Retirement Village Planning for Florida. The Need for an Engineering Approach—*By Richard S. Sahlie. Tallahassee, Fla.: Florida State Improvement Commission. Research Report No. 3, December,* 1952.

Florida has a local problem in the number of older people, many with fixed low income, who migrate from other states to retire. In 1950, the governor created a Florida State Improvement Commission to study the situation and make recommendations. The commission has proposed "sponsored neighborhood villages" as a partial answer to the problem, and aroused discussion whether communities built exclusively for retired people are either desirable or advisable.

This pamphlet summarizes a study, designed to discover the attitudes of older people themselves toward retirement villages and, upon favorable reaction, to indicate investigations that should be undertaken preliminary to detailed planning for the towns. On the basis of a rather small, biased sample of retired people who received the questionnaire and a smaller number who replied to important questions, it was concluded that the results of the survey warrant further planning for retirement villages.

If the premise is correct, and such villages are to be constructed, the proposed studies, which would better implement planning, are sound. Investigations would yield information for location of villages; the need of community services; from the standpoint of health and safety of the inhabitants, desirable village layout, equipment, materials, and methods of construction; general plans for construction and kitchen design; and finally, from financial analyses, materials and methods of economic construction and feasible methods for payment that could be recommended. All information would be made available to groups and organizations planning to establish villages.

ELEANOR WATKINS

Phantasy in Childhood — *By Audrey Davidson and Judith Fay. New York: Philosophical Library,* 1953. 188 pp. Price, $4.75.

Phantasy in Childhood, the authors state in their introduction, is intended not only to express certain theories in nontechnical language, but to show "how helpful some knowledge of infantile phantasies can be from a practical point of view."

The reader is presented with more than a hundred illustrative fragments drawn from observed or reported behavior episodes or verbal expressions of some 45 children. Although many appear only once, some 15 children are described or discussed from two to 12 times in paragraphs scattered throughout the book. There is no index to help the reader relate the various episodes, nor is an age sequence consistently followed.

The observations reported evidently limit the authors, in general, to speculations concerning the relation of the observed behavior to the stated theory. In three illustrative episodes, for ex-

ample, it is stated that the specific phantasies underlying the observed behavior were never discovered.

The practical applications are indicated in terms which are familiar and accepted by child care workers who have a moderate acquaintance with the literature of the subject. The book is not without interesting material as, for example, the rather detailed account of a child's early history as recorded by her mother, to which the final chapter is devoted. Its usefulness and value for child care workers, however, may be questioned. WILLIAM M. SCHMIDT

Human Problems in Technological Change — *By Edward H. Spices, Editor. New York: Russell Sage Foundation,* 1952. 301 pp. Price, $4.00.

This is a casebook of applied anthropology designed to create in those who sponsor any kind of technological change an awareness of the many human problems which may be involved. It should be required reading for all United States consultants before they go overseas, but at the same time many professional persons working in the United States would profit from it, since we, too, have our own established cultural patterns.

Fifteen concrete cases are presented from all over the world, showing both success and failure in introducing technological change. Each case is divided into the following sections: statement of problem, course of events, relevant factors, outcome, and analysis. It is unfortunate that this style produces a feeling of repetition which is heightened in several instances by the choice of cases. Nevertheless, here is a book which has far-reaching implications for many experts in most professional fields.

HOWARD W. LUNDY

Dairy Engineering—*By Arthur W. Farrall (2nd ed.). New York: John Wiley,* 1953. 477 pp. Price, $6.00.

Originally published in 1942, this revision brings up to date the technical discussion of dairy plant operation. Mr. Farrall is head of the Department of Agricultural Engineering at Michigan State College, and it is from such a viewpoint that he writes. The volume, as described on the jacket, "presents important information that will help the reader obtain greater efficiency in dairy-plant operation, and in the selection, installation, and management of equipment."

Dairy Engineering will be of definite value to the plant foreman or superintendent because of the discussions of mechanical devices used in dairy plants, of problems of steam generation and refrigeration, of equipment maintenance and operation. The volume will have equal value to the environmental sanitation staff of a health department for the same reasons. Even though "public health" is not the reason for writing this book, it is given due consideration when operation, maintenance, and design characteristics of equipment are being discussed. The book should be a good orientation reference for anyone having dealings with dairy-plant operators. It should help to bring the seasoned milk sanitarian up to date on equipment development.

FRANCIS B. ELDER

Crete, A Case Study of an Underdeveloped Area—*By Leland G. Allbaugh. Princeton, N. J.: Princeton University Press,* 1953. 572 pp. Price, $7.50.

What is to be done about underdeveloped countries the world over? This study of Crete is presented by the Rockefeller Foundation in an attempt to help find specific answers. The facts, methods, and recommendations in this report have significance not only for Crete but in other parts of the world.

In order to get deeper and more reliable data than is usually possible within the practical limits of a survey,

a method of visits by trained Greek interviewers of a selected sample of households was used. Data on health, foods, economics, agricultural equipment and methods, social customs, medical care, etc., were obtained. The method, schedules, and detailed results are in the appendixes of the volume. The data emphasize that the life of the people is an integrated whole and changes in each field must be considered in terms of their effect on all the parts. One gets a new appreciation of what is involved in "raising the levels of living."

Crete has meager natural resources, abundant though untrained human resources, and extremely limited capital resources. The fact that it does not, however, have overwhelming problems of overpopulation, etc., makes it more useful for this type study. Little change has occurred in the work and life of most Cretan farmers since Biblical times. Its chief physical problems are the supply of water, agricultural production, and health. The supply of water is perhaps the most serious, but the "easy" solution of large dams and dramatic new facilities was not thought to provide an adequate answer. Studies of the soil indicated practical means of making substantial improvements. Although the basic diet is probably much the same as it was in 2000 B.C., modified by the addition of sheep and some fruits in the Doric era and citrus fruits and tomatoes in the past millennium, the average diet of even the lowest group was adequate in total energy value and not grossly inadequate in any important respect.

The volume provides fascinating details and recommendations in health, agriculture, economics, government, and culture.

ROSCOE P. KANDLE

Let's Hear It! Confessions of a Hard of Hearing Doctor—*By George W. Frankel. New York: Stratford House*, 1952. 63 pp. Price, $1.00.

This little volume is aimed at the adjustment of the hard of hearing person to the necessity of dependence on a hearing aid. It deals almost exclusively with the psychology of those with this handicap and the natural resistance to wearing of a hearing aid.

The author describes his own experience in firsthand terms and, in a very nontechnical style, urges these persons to face their difficulty squarely and to depend on the modern instruments available.

For the purpose indicated it is a recommended book.

REGINALD M. ATWATER

Living with Cancer—*By Edna Kaehele. New York: Doubleday*, 1952. 160 pp. Price, $2.00.

Edna Kaehele, speaking from the heart as a lay patient with a diagnosis of incurable cancer, vividly expresses the emotional and physical reactions to the three stages of the disease, namely: the anxious period of diagnostic study; the acute painful stage, during which time active treatment holds out hope; and the slow convalescent stage, during which time medical authorities present a completely hopeless attitude.

With six years personal experience, the author feels that patients can live useful lives with active cancer just as one might do with many other chronic diseases.

The writer exemplifies psychosomatic medicine in the fullest sense of the word, and the book is well worth the reading by anyone who is working with cancer patients. On a selective basis it could be recommended to cancer patients for its rehabilitative value.

MAUDE M. PETTUS

Your Health, Sir!—*By Miriam Lincoln. New York: Harper*, 1953. 211 pp. Price, $2.75.

An interesting, well written book of 22 chapters covering various health problems such as heart disease, arthritis,

ulcers, hernia, backaches, headaches, weight control, alcohol, lung trouble and others. The book is written in a popular style.

The health advice is sound and in keeping with modern medical knowledge. A considerable part of each chapter is devoted to the anatomical and physiological explanation for the hygienic advice that follows. Such descriptions are written in a nontechnical style. At times the effort to achieve popular expression results in such sentences as follow: "If man is to be a social animal and mix pleasantly in society, he must have some arrangement for controlling the escape of gas and feces, so he is endowed with a double length of muscles that tightly close the opening of the anus." Of course, nature has hardly provided human beings with their existing anatomy so that they may mix pleasantly in society. Another example of the author's style: "Like a streamliner, food travels the intestinal tract on a regular time table. The whole run takes about eighteen hours."

To some readers this kind of style will undoubtedly make the book more attractive. As far as the health facts are concerned, Dr. Lincoln's book is well worth reading by that part of the population for which the writing is intended.

OLIVER E. BYRD

The Future of Cities and Urban Redevelopment—*Edited by Coleman Woodbury. Chicago: University of Chicago Press,* 1953. 764 pp. Price, $9.00.

The major conclusions of the Urban Redevelopment Study, carried out by a staff headed by Coleman Woodbury, are summed up in this comprehensive volume. It covers a much broader field than its name implies and cannot be adequately reviewed in a few short paragraphs. It is concerned with the whole field of urban and metropolitan planning, from the organization of a favorable climate for planning action to the solution of specific problems within the urban environment.

There is so much meat in this book that it is difficult to pick out any section for special comment. The chapter on "The Needs and Desires of the Urbanite" in Part III should prove of particular interest to those in the field of public health, giving, as it does, a clear picture of the physiological, socially acquired, and cultural needs of the average citizen. Specific areas of investigation include the internal and external space requirements of the dwelling unit and its relation to the neighborhood and the community.

Coleman Woodbury, besides editing this volume and providing concise forewords to each of the five parts, has done an excellent job in the final section in presenting the problems and opportunities in the field of urban redevelopment against the historical background of the past fifty years. He is an optimist with his feet firmly on the ground, who believes that the city is here to stay and that it can be reconstructed physically and administratively to make it a better place for living and working.

FREDERICK J. ADAMS

Epidemiology and Control of Endemic Syphilis: A Report on a Mass-Treatment Campaign in Bosnia—*By E. I. Grin. New York: Columbia University Press,* 1953. 93 pp. Price, $1.00.

This study provides important data on problems and accomplishments in the control of endemic syphilis in Bosnia. The monograph presents the early theories about the disease and discusses previous campaigns to control it. It effectively refutes the former theories that failure to wipe out endemic syphilis was due to treatment failure. It also indicates that the best results are secured when the entire population of the infected zone is examined, the infected

person treated, and abortive treatment given to all members of any family in which infection is found. Treatment is free and obligatory, and now consists of penicillin.

The International Treponematosis Laboratory Center at Johns Hopkins University studied in animals two strains of *T. pallidum* from Bosnia. The Bosnia strains demonstrated the same degree of sensitivity to penicillin as the Nichols strain, and it was concluded that the response to therapy of a patient with endemic syphilis should follow much the same pattern as that observed in patients with venereally acquired syphilis. This has been the actual clinical experience.

In addition to comprehensively discussing the organization and conduct of a disease control program, the author calls attention to the importance of such an operation in strengthening the general public health services of the region.

There is a detailed and thorough study of the epidemiology of the disease, with particular reference to the control problems inherent in the region and the population served. This is supplemented by a clinical and serologic consideration of the disease entity. Of particular interest to the syphilologist is the discussion of the significance of gummata in relation to infection and reinfection and their possible importance as an epidemiological index.

This monograph should provide a valuable source of information not only to those planning control programs in syphilis, but also to those interested in formal epidemiology and syphilology.

JAMES K. SHAFER

Micrometeorology: A Study of Physical Processes in the Lowest Layers of the Earth's Atmosphere—*By O. G. Sutton. New York: McGraw-Hill,* 1953. 333 pp. Price, $8.50.

This is one of the very few books of its kind, dealing with physical phenomena taking place in the atmosphere near the ground which affect animal and plant life directly or indirectly. The treatment is predominantly theoretical on a postgraduate level, stressing, throughout, the application of mathematical physics to the solution of practical micrometeorological problems.

Chapters 1 to 4 are devoted to basic classical theories of gas flow and heat transfer, and are intended for meteorologists and research workers in this field. Of particular interest to industrial hygiene engineers are the last four chapters dealing with absorption and emission of radiation by the earth's surface, vertical temperature gradients, wind gradients, atmospheric diffusion, and evaporation. Among the practical problems discussed here are those relating to the occurrence of radiation fogs, the prediction of night minimum temperatures and frosts, and the dispersion of smokes, toxic gases, and fumes from industrial chimneys, in relation to localized meteorological phenomena, that are held responsible for several recent "smog" disasters.

Although this book is an excellent contribution to theoretical micrometeorology, it has little to offer to public health workers.

C. P. YAGLOU

Textbook of Virology—*By A. J. Rhodes and C. E. Van Rooyen. (2nd ed.). Baltimore: Williams & Wilkins,* 1953. 561 pp. Price, $8.00.

This is an excellent new book. It is much larger than the first edition, but much smaller than the authors' well known *Virus Diseases of Man.*

The book illustrates the deplorable present status of the classification of virus diseases. The arrangement is by organ principally affected, but the rickettsial diseases are segregated; mumps appears in the section on respiratory diseases (with psittacosis); and yellow fever in the section on arthropod-borne diseases, which does not include equine and St. Louis encephalitis.

Rather arbitrarily, two animal diseases, mouse and porcine encephalomyelitis, have been described.

The volume is divided into 12 sections and 67 chapters, most of which are very brief. Poliomyelitis receives most attention, 65 pages. A long section is devoted to the characteristics of virus infection. Therapy and laboratory diagnosis are briefly discussed.

The book as a whole is an excellent resume of present knowledge. The bibliography is frequently limited but is well selected. GILBERT DALLDORF

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADD LIFE TO THEIR YEARS. Activity Programs in Homes for the Aged. Catherine Lee Wahlstrom. New York: National Council of Churches, 1953. 75 pp. Price, $1.00.

ADVENTURES IN ARTIFICIAL RESPIRATION. Peter V. Karpovich. New York: Association Press, 1953. 303 pp. Price, $7.50.

ATOMIC ENERGY IN INDUSTRY. Minutes of Special Conference October 16–17, 1952, New York City. New York: National Industrial Conference Board, 1952. 40 Sections. Price, $10.00 paper bound.

AVIATION TOXICOLOGY. Aero Medical Association. New York: Blakiston, 1953. 120 pp. Price, $4.00.

BACKGROUND FOR TOMORROW. Kate Frankenthal. New York: Vantage Press, 1953. 108 pp. Price, $2.50.

BLOOD AND BLOOD DERIVATIVES PROGRAM. United States Civil Defense (rev. ed.—1953). Washington, D. C.: Gov. Ptg. Office, 1953. 198 pp.

CANADIAN SICKNESS SURVEY 1950–1951. Special Compilation No. 1. Family Expenditures for Health Services. Ottawa, Canada: Dominion Bureau of Statistics and Department of National Health and Welfare, 1953. 13 pp. Price, $.25.

CRITERIA FOR RETIREMENT. A Report of a National Conference on Retirement of Older Workers. Geneva Mathiasen, Editor. New York: Putnam's, 1953. 233 pp. Price, $3.50.

DRUG ADDICTION AMONG ADOLESCENTS. Conferences Held at The New York Academy of Medicine, November 30, 1951 and March 13–14, 1952. Sponsored by The New York Academy of Medicine and The Josiah Macy, Jr. Foundation. New York: Blakiston, 1953. 320 pp. Price, $4.00.

EDUCATION ON THE AIR, 1952. 22nd Yearbook of the Institute for Education by Radio and Television. Edited by O. Joe Olson. Columbus, Ohio: Ohio State University, 1952. 396 pp. Price, $4.00.

EPIDEMICS IN COLONIAL AMERICA. John Duffy. Baton Rouge, La.: Louisiana State University Press, 1953. 274 pp. Price, $4.50.

EPIDEMIOLOGY OF HEALTH. New York Academy of Medicine Book. Iago Galdston, Editor. New York: Health Education Council, 10 Downing Street, 1953. 197 pp. Price, $4.00.

ESSENTIALS OF PHYSIOLOGICAL CHEMISTRY. Arthur K. Anderson (4th ed.). New York: Wiley, 1953. 480 pp. Price, $5.00.

EVALUATION OF REHABILITATION. Monograph I. Georgia F. McCoy and Howard A. Rusk. New York: Institute of Physical Medicine and Rehabilitation, New York University—Bellevue Medical Center, 1953. 87 pp. Price, $1.00.

FRUIT OF AN IMPULSE. Forty-five Years of the Carnegie Foundation 1905–1950. Howard J. Savage. New York: Harcourt, Brace, 1953. 407 pp. Price, $6.00.

GOVERNMENT PUBLICATIONS, A POPULAR GUIDE TO. W. Philip Leidy. New York: Columbia University Press, 1953. 296 pp. Price, $3.00.

HOME ACCIDENT PREVENTION. A Guide for

Health Workers. Public Health Service Publication No. 261. Washington, D. C.: Public Health Service, 1953. 75 pp.

IMMUNITY. HYPERSENSITIVITY-SEROLOGY. Sidney Raffel. New York: Appleton-Century-Crofts, 1953. 531 pp. Price, $8.00.

INDIVIDUAL AND COMMUNITY HEALTH. William W. Stiles. New York: Blakiston, 1953. 492 pp. Price, $6.00.

INFLUENZA AND OTHER VIRUS INFECTIONS OF THE RESPIRATORY TRACT. C. H. Stuart-Harris. Baltimore: Williams & Wilkins, 1953. 235 pp. Price, $6.00.

I WANTED TO LIVE. An Autobiography by Will Ross. Milwaukee, Wis.: Wisconsin Anti-Tuberculosis Association, 1953. 162 pp. Price, $2.50.

MEDICAL PUBLIC RELATIONS. A Study of the Public Relations Program of the Academy of Medicine of Toledo and Lucas County, Ohio, 1952. Edgar A. Schuler, Robert J. Mowitz, and Albert J. Mayer. New York: Health Information Foundation, 1952. 216 pp. Limited Distribution.

MODERN CONCEPTS OF COMMUNICABLE DISEASE. Morris Greenberg and Anna V. Matz. New York: Putnam's, 1953. 567 pp. Price, $6.20.

MODERN MANAGEMENT FOR THE CITY OF NEW YORK. Vol. II. Report of the Mayor's Committee on Management Survey. City of New York, 1953. 876 pp.

PATHS OF LONELINESS. The Individual Isolated in Modern Society. Margaret Mary Wood. New York: Columbia University Press, 1953. 250 pp. Price, $3.75.

PATIENTS ARE PEOPLE. Minna Field. New York: Columbia University Press, 1953. 244 pp. Price, $3.75.

PHYSICIAN IN ATOMIC DEFENSE. Thad P. Sears. Chicago: Year Book Publishers, 1953. 308 pp. Price, $6.00.

PREINDUCTION HEALTH AND HUMAN RELATIONS. For Use in High Schools and Colleges. Esther Emerson Sweeney and Roy E. Dickerson, Editors. New York: American Social Hygiene Association, 1953. 176 pp. Price, $1.25.

PSYCHOANALYSIS AND PERSONALITY. Joseph Nuttin. New York: Sheed and Ward, 1953. 310 pp. Price, $4.00.

PSYCHOANALYSIS AND SOCIAL WORK. Edited by Marcel Heiman. New York: International Universities Press, 1953. 346 pp. Price, $5.00.

PUBLIC HEALTH NURSING CARE OF THE SICK AT HOME. New York: National League for Nursing, Department of Public Health Nursing, 1953. 57 pp. Price, $1.00.

REFRIGERATION IN AMERICA. A History of a New Technology and Its Impact. Oscar Edward Anderson. Princeton, N. J.: Princeton University Press, 1953. 344 pp. Price, $6.00.

REHABILITATION OF THE PHYSICALLY HANDICAPPED. Henry H. Kessler (rev. ed.). New York: Columbia University Press, 1953. 275 pp. Price, $4.00.

SAMPLING TECHNIQUES. William G. Cochran. New York: Wiley, 1953. 330 pp. Price, $6.50.

SCHOOL HEALTH PROBLEMS. Lawrence B. Chenoweth and Theodore K. Selkirk (4th ed.). New York: Appleton-Century-Crofts, 1953. 446 pp. Price, $4.00.

SOCIAL AND HEALTH AGENCIES OF NEW YORK CITY 1952–1953, DIRECTORY OF. Prepared Under the Direction of the Committee on Information Services of the Welfare and Health Council. Dorothy M. Swart, Editor. New York: Columbia University Press, 1952. 551 pp. Price, $5.00.

STUDY OF WEIGHT REDUCTION USING GROUP METHODS. Report of Progress—1950–1952. Berkeley, Calif.: Herrick Memorial Hospital, 1953. 198 pp.

TRENDS OF OPINION ABOUT THE PUBLIC HEALTH 1901–1951. J. M. Mackintosh. New York: Oxford University Press, 1953. 201 pp. Price, $3.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Though Completely Preventable—Among all the nations, America alone admits to widespread trichinosis as a sort of unique national disgrace—a disgrace of which Dr. Chisholm reminded us last year. Well, here are the highlights of the first national conference on trichinosis. The *first* please note, and the year also—1952.

ANON. Trichinosis: Prevalence, Transmission, Prevention. *Pub. Health Rep.* 68, 4:416 (Apr.), 1953.

Most Prevalent Chronic Disease—It should be enough here, simply to note that this is the fourth edition of this always usefully simple and clear statement about rheumatic diseases (in general).

ANON. Primer on Rheumatic Diseases. *J.A.M.A.* 152, 4:323 (May 23), 1953.

Seven Thousand Died in 1951—The success of outpatient treatment with penicillin has presented a new problem in syphilis control via contact interviewing: so concludes this writer. There are two million persons with late, or latent, syphilis who remain to be detected and they present still another problem.

BAUER, T. J. Public Health Problems in Syphilis Control. *J.A.M.A.* 152, 4:300 (May 23), 1953.

For Complacent M C H'ers—To be sure, maternal and infant deaths have been handsomely reduced, but much isn't being done that we know could be done to reduce them still further—and more important—to improve the health of the mothers and infants who don't die. A child's chances for survival still depend too much upon where he lives and who his parents are. Did you miss this fine paper?

BAUMGARTNER, L. Maternal and Child Health Services. *Pub. Health Rep.* 68, 4:397 (Apr.), 1953.

Country Lanes to Health—Another useful survey article: this one, reporting the deliberations of the eighth Conference on Rural Health, offers many hints for improving country medical, dental and health services.

CROCKETT, F. S., *et al.* Looking Back to Look Ahead in Rural Health. *Pub. Health Rep.* 68, 5:480 (May), 1953.

Well-Adult Clinic—This is the story of 2,111 clinic examinations of presumably well New Yorkers over age 35. Symptomless cancer, precancerous neoplasms, and more numerous noncancerous conditions were totaled and averaged, amounting to one and one-half diagnoses per examinee. A lot of information is graphically presented.

DAY, E., *et al.* Cancer Detection. *Am. J. Hyg.* 57, 3:344 (May), 1953.

Just for the Record—In hot, desert areas (in Arizona) children are heavy drinkers of water—as might be expected. When the public water supplies contain fluorides in excess of 0.6 ppm some mottling of the teeth is found: less than that amount, no objectionable fluorosis.

GALAGAN, D. J., and LAMSON, G. G., JR. Climate and Endemic Dental Fluorosis. *Pub. Health Rep.* 68, 5:497 (May), 1953.

Inspiration Unlimited—For him who thirsts for understanding—and why else would he be reading this *Journal?*—

here is a sort of psychologic Pierian Spring that is a veritable gusher (of inspiration) though there is scarcely a nickle's worth of "info" in the four papers (for us plodders). Just good reading! The title tells enough.

HUNT, E., *et al.* The Dean and the Psychiatrist: A Symposium. *Ment. Hyg.* 37, 2:177 (Apr.), 1953.

Private Medicine But Public Health—Examples are given of families in which infections go round and round. Ways for stopping repeated reinfections by "family therapy" are studied—and the findings make sense.

KEMPE, C. H. The Family as a Reservoir of Childhood Infections. *J.A.M.A.* 151, 17: 1472 (Apr. 25), 1953.

"For the Want of a Nail, etc., etc."—In a suburban area of England in which 73 per cent of the school population had been immunized against diphtheria at some previous time, there occurred an outbreak of the disease totaling 105 cases with 6 deaths. The lack of a booster-dose program is mentioned.

LYCETT, C. D. L., and GEORGE, J. T. A. An Outbreak of Diphtheria: Influence of Immunization. *Brit. M. J.* No. 4817:964 (May 2), 1953.

Exercise for Your Reasoning Powers—Why do some diseases produce permanent immunity and others only transient relief? The theory discussed in this paper is put forward in an effort to explain phenomena on which other concepts seem to founder.

MACLEOD, C. M. Relation of the Incubation Period and the Secondary Immune Response to Lasting Immunity to Infectious Diseases. *J. Immunol.* 70, 4:421 (Apr.), 1953.

Costs in Time and Effort—Detractors say time studies end up in a mess of indigestible statistics that aren't representative anyway. Partisans insist they are the best way to get the information that tells the administrator whether his program is good or bad. The rest of us will be helped to arrive at an opinion in this matter by a revealing report of a Mississippi time study.

MILNE, J. A., *et al.* Time Study of Public Health Activities in Mississippi. *Pub. Health Rep.* 68, 4:378 (Apr.), 1953.

Pros and Cons Re Fluoridation—Four papers on water fluoridation run up and down the keyboard. The first tells about a lucky city that found a high fluorine well-water to add to its system to give the proper concentration economically. The second warns that if water supplies are fluoridated, city water will no longer be usable by distillers to steep their corn, or by brewers to grow their yeast. (And that *is* serious!) The third suggests that milk be fluoridated instead. (This is deftly knocked into a cocked hat by the discussant). And the last (by lawyers) confirms the assumption that it is legally safe for cities to fluoridate water.

MURDEN, X. D., *et al.* Natural-Fluoride Well Water Added to Portsmouth Surface Supply (and three associated papers). *J. Am. Water Works A.* 45, 4:363 (Apr.), 1953.

Toward Future Need—"Among the first projects (of the National Institute of Health's new clinical center) will be a study of individual differences in the utilization of foodstuffs, with a view to throwing light on the etiology of obesity." There is a lot else to cheer about in this report on research in nutrition.

SEBRELL, W. H., JR. Trend and Needs in Nutrition. *J.A.M.A.* 152, 1:42 (May 2), 1953.

Once "A Strange Paralytic Disease"—Just about everything that could be said, statistics-wise, about annual visitations of polio ever since the

Vermont outbreak in 1894 is graphically spread before you here. "Changing Epidemic Patterns" is a particularly interesting feature.

SERFLING, R. E., and SHERMAN, I. L. Poliomyelitis Distribution in the United States. *Pub. Health Rep.* 68, 5:453 (May), 1953.

Simple Words and Sentences—In the recent past, Flesch and certain others, have proposed that the readability of writing can be measured. Are you one whose attention was caught by these assertions but who wondered how much validity there was to them? If you are, then you will be reassured by studies, such as the one recorded here, to the effect that readability formulas do predict differences in comprehendability.

SWANSON, C. E., and FOX, H. G. Validity of Readability Formulas. *J. Appl. Psychol.* 37, 2:114 (Apr.), 1953.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publications in which they appear; the addresses are furnished for your convenience.

Am. J. Hyg. (American Journal of Hygiene), 615 N. Wolfe St., Baltimore 5, Md.

Brit. M. J. (British Medical Journal), British Medical Association House, 19 Tavistock Sq., London, W.C. 1.

J.A.W.W.A. (Journal of the American Water Works Association), 500 Fifth Ave., New York 18, N. Y.

J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago 10, Ill.

J. Appl. Psychol. (Journal of Applied Psychology), American Psychological Association, 1515 Massachusetts Ave., N.W., Washington 5, D. C.

J. Immunol. (Journal of Immunology), Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore 2, Md.

Ment. Hyg. (Mental Hygiene), National Association for Mental Health, 1790 Broadway, New York 19, N. Y.

Pub. Health Rep. (Public Health Reports), Superintendent of Documents, Gov. Ptg. Office, Washington, D. C.

ASSOCIATION NEWS

Eighty-First Annual Meeting
American Public Health Association
New York, N. Y., November 9–13, 1953

SOUTHERN BRANCH MEETS IN ATLANTA

The 22nd annual meeting of the Southern Branch, American Public Health Association, was held in Atlanta, Ga., April 23–25, preceded by the 24th annual meeting of the Georgia Public Health Association.

The Southern Branch, founded in 1932, includes public health workers from Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and Latin American countries. More than 600 persons registered for the meetings and were outspoken in their appreciation of plans made by their hosts in Atlanta and Georgia.

As in recent years, the feature of the program was the one full day of Curbstone Consultations which consisted of 19 booths, each on a particular subject, with more than 100 consultants organized to answer questions of those who attended. The subject matter of these consultations included, among other subjects, statistical problems, developments in the cardiac program, new aspects of the diabetes control program, dental health education with the use of visual aids, schools of dental hygiene, mass surveys, animal infections and human health, laboratory methods for communicable disease control, insect and vector control, nursing and convalescent homes and problems of aging, hygiene of housing and community sanitation, mental health, school health records, community councils, inservice training programs, health education programs, voluntary health agencies, tuberculosis teaching, and the role of the public health nurse in epidemiology.

Among the featured speakers were Dr. Haven Emerson of New York, Dr. Leonard A. Scheele of Washington, and Dr. Hugh R. Leavell of Boston. There was a program by the Committee on Inter-American Health Problems featuring programs for Inter-American health, pointing out deficiencies in the training of foreign public health students and the contribution that industry might make to international health.

The Governing Council of the Southern Branch discussed at length the report of the Reference Committee on Affiliated Societies and Branches to the Governing Council of the Association (*A.J.P.H.* Apr., 1953, p. 470). A majority opinion held that the Southern Branch had made a contribution to public health in its area, that a considerable number of persons were able to attend regional meetings who could not get to the Association meeting, and that there should be a strong affiliated society in each of the states. The Governing Council of the Association was asked to maintain the present relationship of the Southern Branch with the parent organization, as a supplement to the services that the affiliated state societies might render.

Harold C. Taylor, U. S. Public Health Service, Atlanta, Ga., was the president and Andrew Hedmeg, M.D., of New Orleans, the secretary of this meeting. The new officers are:

President—Andrew Hedmeg, M.D., assistant director of county health work and supervisor, field technical advisory staff, State Board of Health, Jackson, Miss.
Vice-President—Julia P. Brunson, nutrition consultant, State Board of Health, Columbia, S. C.
Vice-President—Ann Dillon, senior statistician, Statistical Service, State Department of Health, Nashville, Tenn.
Vice-President—Earl J. Sunkes, Dr.P.H., director, Division of Laboratories, State Department of Public Health, Atlanta, Ga.
Secretary-Treasurer—J. W. R. Norton, M.D., secretary and state health officer, State Board of Health, Raleigh, N. C.

NEWS OF AFFILIATED SOCIETIES

Connecticut

The Connecticut Public Health Association held its annual meeting on May 7 at Norwich, with a registered attendance of 218. Some of the topics discussed were Sanitation of the Environment; Nursing Developments; Connecticut State Medical Society Looks at School Health; Regional Approach to Health Administration. New officers are:

President—Leonard Parente, M.D., health officer, Hamden
President-Elect—Dorothy Wilson, Ed.D., director, Visiting Nurse Association of New Haven
Vice-President—William H. Upson, M.D.
Treasurer—Marian L. Arnold, Nutrition Division, Connecticut Dairy and Food Council
Secretary—Irma Biehusen, State Services Division, American Cancer Society

Idaho

During its annual meeting held May 8 and 9, the Idaho Public Health Association elected the following officers:

President—Joe Latimore, Municipal League, Twin Falls
Vice-Presidents—S. D. Simpson, M.D., Medical Association, Caldwell
Frances M. Goodwin, executive secretary, Idaho Tuberculosis Association, Boise
A. Ben Wheeler, Idaho Tuberculosis Association, Boise
Dr. Doyle M. Loehr, Moscow Clinic, Moscow
Leslie T. McCarthy, Lewiston
Secretary—Vaughn Anderson, senior chemist, Division of Laboratories, State Department of Public Health, Boise
Treasurer—Dorothy D. Campbell, St. Luke's Hospital, Boise

L. J. Peterson, administrative director, State Health Department, was re-elected representative to the APHA Governing Council.

Illinois

The 13th Annual Conference of the Illinois Public Health Association was held in Chicago, April 9 and 10. Approximately 400 persons attended the meeting and heard and discussed such subjects as: How Do the Population Trends Affect the Health Interests of Particular Groups?; How Will the Population Trends Influence Education in Public Health?; Public Health Aspects of Animal Diseases Transmissible to Man; Population Distribution in Illinois and Its Effects Upon Dental Health; Responsibilities and Relationships of Groups in Bringing about Fluoridation of Public Water Supplies; The Uses of Dental Health Surveys in Evaluating Fluoridation Programs; Report on Rabies Outbreak and Control Measures in East St. Louis; The Health Officer in the Control of Brucellosis and Psittacosis; Public Health Significance of Trauma; The Occurrence, the Determination and Effect of Toxic Algae, Chemical Pollutants of Water, and Atmospheric Pollutants.

The following officers were installed:

President—Mary M. Dunlap, R.N., associate professor of nursing education, University of Chicago
President-Elect—Felix A. Tornabene, M.D.,

district health officer, State Department of Public Health, Aurora

Secretary-Treasurer—Ben D. Kiningham, Jr., executive director, Illinois Tuberculosis Association, Springfield

The IPHA will meet next in Springfield, April 1–2, 1954.

Missouri

For its 1953 annual meeting the Missouri Public Health Association met in Jefferson City, May 4–6, and elected the following officers to serve for the coming year:

President—Donald E. Pratt, executive secretary, Missouri Tuberculosis Association, St. Louis

President-Elect—A. R. Baron, district public health engineer, District Health Office No. 6, Poplar Bluff

Vice-President—Clyde A. Bridger, Division of Health, Jefferson City

Secretary-Treasurer—Nadia Craver, Division of Health, Jefferson City

Representative to APHA Governing Council—J. Earl Smith, M.D., city health commissioner, St. Louis

The 1954 meeting will be held in St. Joseph, May 6–8.

Ohio

The Ohio Public Health Association met in Columbus April 9 to 10. For the 1953–1954 term the officers are:

President—Marion G. Fisher, M.D., health commissioner, Lorain County Department of Health, Oberlin

President-Elect—Dorothy Royce, R.N., Madison County Health Department, London

Secretary-Treasurer—Irene T. Bishop, Greenville—Darke County Department of Health, Greenville

Representative to APHA Governing Council—Charles A. Dille, M.D., medical director, Dille Laboratories, Dayton

JOINT MEDICAL CARE COMMITTEE

The American Public Welfare Association's Committee on Medical Care has announced its 1953–1954 appointees to the Joint Committee on Medical Care of the APWA and the American Public Health Association. The list, all but the first of whom are reappointments, follows:

Marguerite Galloway, supervisor, Field Services, Bureau of Assistance, New Jersey State Department of Institutions and Agencies

James Brindle, assistant director, Social Security Department, United Auto Workers, CIO

Mary Weaver, principal medical assistance standards specialist, Bureau of Public Assistance, Social Security Administration

Judge Thomas J. S. Waxter, director, Baltimore Department of Public Welfare

Miss Galloway and Dora Goldstine, associate professor of medical social work, School of Social Service Administration, University of Chicago, APHA representative, will serve as co-chairmen. Other APHA representatives are:

Dean A. Clark, M.D., director, Massachusetts General Hospital

I. S. Falk, Ph.D., director, Bureau of Research and Statistics, Social Security Administration

Milton Terris, M.D., assistant dean in charge of post graduate education, University of Buffalo School of Medicine

It will be remembered that this Joint Committee during 1952 prepared a statement on "Tax-Supported Medical Care for the Needy," which was published in the *Journal* of each Association. This report is now being widely distributed in order to stimulate joint planning for program development and administration, and bringing together the special skills and resources of each to ensure improved medical care, high standards of administration, and economical use of public funds.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Joseph Berg, M.D., 501 West 183rd St., New York 33, N. Y., Health Officer-in-training, City of New York Health Dept.

Merwin E. Buchwald, M.D., P. O. Box 1226, Fort Myers, Fla., Health Officer II, Lee-Collier Counties Health Unit

Oswaldo Lopes da Costa, M.D., M.P.H., 1501 New Hampshire Ave., N.W., Washington, D. C., Chief, Health Promotion Branch, Pan American Sanitary Bureau

Calvert L. Emmons, M.D., Emmons Building, Room 202, Ontario, Calif., Ontario Health Officer

Leo R. Evans, M.D., Box 480, Clinton, Okla., Director, Beckham-Custer Counties Health Dept.

Leonard O. Fears, Jr., M.D., 312 Fries Road, Galax, Va., Director, Carroll-Grayson Counties Health District

Henry F. Godin, 75 Middle St., East Weymouth, Mass., Health Officer Weymouth Health Dept.

Cesar Gordillo-Zuleta, M.D., Alcanfores 1120, Miraflores, Lima, Peru, S. A., Director, Oficina de Intercambios Internacionales, Ministerio de Salud Publica

Rosemary B. Harvey, M.D., 2304 "A" St., N.E., Miami, Okla., Public Health Officer, Ottowa, Delaware and Mayes Counties

Joseph N. Hebble, M.D., City Building, Springfield, Ohio, Director, City of Springfield Health Dept.

Maria A. Herz, M.D., 1425 N. Mansfield Ave., Hollywood 28, Calif., Physician, Los Angeles County Health Dept.

Wiley W. Johnston, M.D., Manteo, N. C., Health Officer, Currituck-Dare District Health Dept.

Henry I. Langston, M.D., P. O. Box 310, Marianna, Fla., Health Officer, Jackson County Health Dept.

A. P. Lindenmayer, M.D., 2108 E. 39th St., Ashtabula, Ohio, Health Commissioner, Ashtabula County General Health District

Mary C. McLaughlin, M.D., M.P.H., 158 Aster Drive, New Hyde Park, N. Y., Health Officer, New York City Dept. of Health

Sam W. Moore, Greensburg, Ky., Health Administrator, Kentucky State Dept. of Health

Charles A. Pigford, M.D., Box 553, Midland, Tex., Director, Midland-Ector-Howard Counties Health Unit

William L. Ross, Jr., M.D., 3836 Florence Drive, Alexandria, Va., Chief, Anticoagulant Program, Heart Section, Division of Chronic Disease and Tuberculosis, U. S. Public Health Service, Washington, D. C.

J. Marvin Salzman, M.D., City Hall, Health Dept., Springfield, Ill., Supt. of Public Health, Dept. of Public Health

D. D. Todorovic, M.D., Masonic Temple Building, Dunsmuir, Calif., City Health Officer, Dunsmuir, Calif.

Albert F. Ullman, M.D., P. O. Box 1228, Panama City, Fla., Health Officer, Bay County Health Dept.

Ernest Ward, M.D., Box 1268, Statesville, N. C., Health Officer, Iredell County

Laboratory Section

George A. Adams, 1408 Windsor Park Lane, Havertown, Pa., Director, The Adams Laboratory

Robert M. Baba, 5223 South Ellis Ave., Chicago 15, Ill., Medical Bacteriologist and Parasitologist, Cook County Hospital

Lucio P. de Carvalho-Lima, M.D., 615 N. Wolfe St., Baltimore 16, Md., Asst. Professor of Bacteriology, University of Sao Paulo, Brazil, S. A.

Dacio de Almeida Christovao, M.D., M.P.H., Univ. of Sao Paulo, Caixa Postal 8099, Sao Paulo, S. P. Brazil, S. A., Asst. Professor of Microbiology and Immunology, School of Hygiene and Public Health

Clinton C. Cole, P. O. Box 28, Flint, Mich., Bacteriologist, City Health Dept., Flint

Salvatore Del Prete, M.D., via Monti 36, Milano, Italy, Internship, Specializando, in Internal Medicine, Pad. "Granelli," University of Milano

Richard M. Garver, 5203 Kalmia, San Diego, Calif., Bacteriologist, U. S. Navy

Charles E. Geckler, M.D., 203 Western Reserve Life Building, Muncie, Ind., Director, Muncie Clinical Laboratory

J. Marion Johnson, The Hospital for Sick Children, Dept. of Bacteriology, Toronto, Ont., Canada, Head Technician

M. Elizabeth McEntire, State Office Building, Room 122, Atlanta, Ga., Director, Water Laboratory, Georgia Dept. of Public Health

Erwin A. McKinlay, 1234 S. 48th St., Apt. 1, Richmond, Calif., Graduate Student, Univ. of California, School of Public Health, Berkeley

Jack W. Morgan, 542 Goepp Circle, Bethlehem, Pa., Bacteriologist Grade II, Maryland State Dept. of Health

Elizabeth Pulliam, 2815 Hawthorne Ave., Richmond 22, Va., Senior Bacteriologist, Virginia State Health Dept.

Donald F. Spino, 2 Colchester Ave., Burlington, Vt., Bacteriologist, State Dept. of Public Health

Lt. Paris B. Swoopes, II, Hill Air Force Base, Ogden, Utah, Chief of Clinical Laboratory, 2791 Medical Group

Betty A. Tuuk, 207 Crane Ave., Royal Oak, Mich., Senior Medical Technician, Pontiac City Health Dept.

Statistics Section

Donald E. Bergstrom, M.P.H., South Hero, Vt., Director, Public Health Statistics Division, State Health Dept.

Clemens R. Busch, 130 7th Ave., West, Dickinson, N. D., Exec. Officer, Southwestern District Health Unit

Imo Jean Crawford, 2201 Hannah Ave., Hartsville, S. C., Medical Administrative Asst., Sonoco Products Company

Mary C. Macdonald, 1200 Lexington Ave., New York, N. Y., Biometrician, Memorial Hospital, Medical Center

Ikuko D. Yoshida, 1328 E. 59th Place, Los Angeles 1, Calif., Student, Univ. of California at Los Angeles, School of Public Health

Engineering Section

Ross C. Armstrong, Jr., M.P.H., 350 Green St., San Francisco 11, Calif., Assoc. in Public Health, Univ. of California, School of Public Health, Berkeley

William T. Ballard, M.S., P. O. Box 268, Tyler, Tex., District Engineer, Texas State Dept. of Health

Arthur N. Beck, M.S., 537 Dexter Ave., Montgomery, Ala., Chief Sanitary Engineer, Bureau of Sanitation, Alabama State Health Dept.

Vigen Gevorkian, Shah-Reza Ave., Fetoohi and Shick, Tehran, Iran, Supervisor, Sanitary Engineering Section Point IV

Thomas W. Keffeler, 2810 61st Ave., Oakland 5, Calif., Student, Univ. of California, School of Public Health

Juan R. Palmer-Cantres, P. O. Box 840, Santa Isabel, Puerto Rico, Entomologist, Bureau of Malaria Control, Health Dept.

L. Raynor Talley, 51 Maryland Ave., Berkeley 7, Calif., Student, Univ. of California, Division of Sanitation

Rufus L. Tindol, Jr., 713 W. Peachtree St., N.E., Atlanta, Ga., General Manager, Orkin Exterminating Co., Inc.

Industrial Hygiene Section

M. M. Abdel Latif, M.B., D.P.H., Director, Medical Division, Social Security Dept., Cairo, Egypt

Ross A. McFarland, Ph.D., Sc.D., 695 Huntington Ave., Boston, Mass., Assoc. Professor of Industrial Hygiene, Harvard School of Public Health

M. Rashad Serry, 25 Rifaa St. Orman, Giza, Cairo, Egypt, Deputy Director General of Permits Dept., Ministry of Public Health

Food and Nutrition Section

Phyllis Berson, M.A., 37-09 75th St., Jackson Heights, N. Y., Nutritionist, Judson Health Center

Mabel E. Evans, M.S., 309 W. Jackson Blvd., Wheat Flour Institute, Chicago 6, Ill., Regional Nutritionist

Ruth M. Leverton, Ph.D., 1339 Idylwild Drive, Lincoln, Neb., Professor, Nutrition Research, Univ. of Nebraska

Daniel F. McCarthy, P. O. Box 84, Canal Zone, Margarita, Panama, Asst. General Sanitary Inspector, United Fruit Company, New York, N. Y.

Gertrude G. Mudge, M.A., 404 Riverside Drive, New York 25, N. Y., Lecturer in Nutrition, Columbia School of Public Health

Grace R. O'Keefe, M.A., 130 E. 57th St., New York, N. Y., Nutrition Consultant, Greater New York Program, National Dairy Council

Robert J. Sumner, Ph.D., Anheuser-Busch, Inc., St. Louis, Mo., Director, Central Research Dept.

Joellene Vannov, M.A., 309 W. Jackson Blvd., Chicago 6, Ill., Regional Home Economist, Wheat Flour Institute

Maternal and Child Health Section

W. Dean Belnap, M.D., 1395 S. 1st East, Bountiful, Utah, Director, Maternal and Child Health, Salt Lake City Board of Health

Marian F. Cadwallader, 12 Capitol Square, S.W., Atlanta 3, Ga., Consultant Nurse, Division of Maternal and Child Health, Georgia Dept. of Health

Joseph C. Cesar, M.D., Port-au-Prince, Haiti, Student, School of Hygiene, Univ. of Toronto, Canada

Solomon P. deFonseka, D.T.M., 325 Ferguson Road, Colombo 15, Ceylon, Student, Univ. of California, School of Public Health, Berkeley, Calif.

Joanna F. Gorman, 16 C Westwood Apts.,

Macon, Ga., Director, Child Guidance Center, Bibb County Health Dept.

Knut J. Kjellberg, M.D., 34 Chemin Krieg, Geneva, Switzerland, Regional Health Officer, Maternal and Child Health, World Health Organization

Donald Marks, M.A., 935 Schofield Building, Cleveland 15, Ohio, Owner, Donald Marks Steel Company

Dr. Lucien Pierre-Noel, Bois Verna, Port-au-Prince, Haiti, Directeur General Adjoint, Sante Publique

Kenneth D. Rogers, M.D., M.P.H., King Edward Apts., Craig and Bayard, Pittsburgh 13, Pa., Asst. Professor, Maternal and Child Health, Univ. of Pittsburgh, Graduate School of Public Health

Steven Sawchuk, M.D., 6809 Castor Ave., Philadelphia 24, Pa., Student, Johns Hopkins Univ., School of Hygiene and Public Health

Helen L. Tepper, M.D., 1852 Tamer Lane Drive, Glendale 8, Calif., Asst. Director, Maternal and Child Health, Los Angeles County Health Dept.

Public Health Education Section

M. Linwood Beck, 1892 Greystone Road, N.W., Atlanta, Ga., Exec. Secy., Georgia Heart Assn.

Florence V. Belli, M.A., Chestnut Ridge Road, Saddle River, N. J., Program Consultant, New Jersey Heart Assn.

Evelyn M. Bergman, R.N., 2568 South Downing, Denver 10, Colo., Public Health Coordinator, Dept. of Health Education, Porter Sanitarium and Hospital

Lt. Kenneth L. Briney, 503 Carrol Drive, Walker Village, Killeen, Tex., U. S. Army, Medical Service Corps

Philip O. Charpentier, 103 Westminster St., Hartford 12, Conn., Sanitarian, Health Dept., City of Hartford

William E. Connell, 24 Mason St., Providence, R. I., Chief of Temporary Disability Insurance Division, Dept. of Employment Security

Margaret L. Cotten, 1912 8th Ave., South, Birmingham, Ala., Exec. Secy., Alabama Heart Assn.

Nettie Day, M.P.H., 114 "A" St., Leaksville, N. C., Public Health Educator, Rockingham-Caswell Health Dept.

Fred D. deArmond, 2220 Moorpark Ave., San Jose, Calif., Public Health Educator, Santa Clara County Health Dept.

John W. Faulkner, Jr., 434 Emerald Ave., San Carlos, Calif., Case Finding Expediter, California Tuberculosis and Health Assn.

Kathleen S. Fox, M.P.H., 847 Freeman Ave., Long Beach 4, Calif., Public Health Educator, Dept. of Public Health, City of Long Beach

Thomas S. Grogan, Jr., M.S.P.H., Bailey Court, Unit 11, Apt. 3, Anderson, S. C., Public Health Educator, Anderson County Health Dept.

Audrey J. Harris, 50 Seventh St., N.E., Atlanta, Ga., General Illustrator, Communicable Disease Center, USPHS

John B. Hermann, 2124 Grand Ave., Des Moines 12, Iowa, Program Coordinator, Iowa Heart Assn.

Ann T. Johnson, M.A., 511 S. 31st Ave., Omaha, Neb., Chief Social Worker, Out-Patient Medical Clinic, Veterans Administration

Edith V. Krabach, 2041 E. 23rd St., Oakland 6, Calif., Student, School of Public Health, Univ. of California

Nathan Lefkowitz, 911 Tiffany St., New York 59, N. Y., Student, Health Education, Columbia Univ., School of Public Health

Dorella K. Logan, 214 City National Bank Building, Norman, Okla., Exec. Secy., Cleveland County Tuberculosis Assn.

Margaret M. McLaughlin, 178 Wyndham Ave., Providence 8, R. I., Medical Claims Examiner, Dept. of Employment Security

Esther L. Middlewood, M.A., 237 Louis, East Lansing, Mich., Director, Mental Health Education, Michigan Dept. of Mental Health

Howard R. Mirkin, 264 Carmita Ave., Rutherford, N. J., Asst. Professor of Biology, Fairleigh Dickinson College, Rutherford, N. J.

Louise Perritt, M.E., P. O. Box 70, Bogalusa, La., Student, Univ. of North Carolina, School of Public Health

Ruth R. Raphael, M.S., 1357 Washington St., West Newton 65, Mass., Exec. Director, Newton Tuberculosis and Health Assn., Inc.

Glenn M. Reno, 5612 Sheridan Ave., South, Minneapolis 10, Minn., Research Associate, Univ. of Minnesota

Heinz F. Reuter, M.D., 22b Ellerbeker Weg, Kiel, Schloswig-Holstein, Germany, Oberregierungs und Obermedizinalrat, Deputy Land Officer of Public Health

Donald T. Rice, M.D., 2918 D Regent, Berkeley 5, Calif., Medical Missionary, United Christian Missionary Society

Anna J. Rolfe, M.P.H., Waddington Road, Ogdensburg, N. Y., Health Educator, Hennepin County Tuberculosis Assn.

Jo Anne Shimonek, M.R.L., 5601 Maxwelton Road, Oakland 18, Calif., Asst. Medical Record Librarian, Herrick Memorial Hospital

Seymour Standish, Jr., 905 Second Ave.

Building, Room 502, Seattle 4, Wash., Exec. Secy., Washington State Health Council

Public Health Nursing Section

Prayong Aranyakananda, Chulalongkorn Red Cross Hospital, Bangkok, Thailand, Chief Nurse, Health Service, The Thailand Red Cross Society

Margaret H. Chappell, R.N., 124 Straub Ave., St. Marys, Pa., General Consultant, Commonwealth of Pennsylvania, Dept. of Health

Audrey L. Davies, R. R. No. 3, Marlette, Mich., Student, Univ. of Michigan

Mildred L. Ervin, 825 Miller St., Easton, Pa., Director, Visiting Nurse Assn. of Easton, Pa.

Elizabeth McE. Fulcher, State Health Dept., Atlanta, Ga., Tuberculosis Consultant Nurse, Georgia Dept. of Public Health

Thomas S. Gay, Jr., 224 Joseph St., Norristown, Pa., President, Visiting Nurse Assn. of Norristown

Gertrude Hotaling, 419 N. Irving Ave., Scranton 10, Pa., Educational Supervisor, Visiting Nurse Assn.

Leone B. Johnson, 412 2nd Ave. E., Spencer, Iowa, Supervisory Nurse, Iowa State Dept. of Health

Vera Lund, 1639½ Carmona Ave., Los Angeles, Calif., Director of Nursing Service, Kaiser Foundation Hospital

Kate M. McIlraith, 237 Queen St., Ottawa, Ontario, Canada, District Supt., Ottawa Branch Victorian Order of Nurses

Sarah A. Rice, 1131 Brown Ave., Columbus, Ga., Public Health Nurse Supervisor, Crippled Children's Division, Georgia Dept. of Public Health

Evelyn R. Rosen, 20 Walden St., Revere 51, Mass., Supervisor, Out-Patient Dept., Instructor of Public Health Nursing, Beth Israel Hospital

Mary E. Rowley, Box 1608, Bethel, Alaska, Public Health Itinerant Nurse, Alaska Dept. of Health

Epidemiology Section

Tobias Gedde-Dahl, M.D., Nasjonalforeningen, Mot Tuberkulosen, for Folkehelsen, Inkognitogt, 1, Oslo, Norway, Secretary General

Alfred B. Geyer, M.D., 1751 26th Ave., N., Seattle, Wash., Medical Officer, USPHS, Quarantine Supervisor, Northwest

Major Roy E. Kyner, Jr., V.C., Univ. of California, School of Public Health, Berkeley, Calif., Administrative Division, Veterinary Services, U. S. Air Force

Malcolm M. Neel, M.D., M.P.H., 224 Central Ave., S.W., Atlanta, Ga., Epidemiologist, Fulton County Health Dept.

Emmanuel G. Papaemmanuel, M.D., 63 Spizou Patsi St., Athens, Greece, Director of Public Health Service, Greek Ministry of Hygiene

Enrique Toro, Jr., D.V.M., Box 844, San Juan, Puerto Rico, Asst. Veterinarian in Charge, Bureau of Animal Industry, San Juan, Puerto Rico

Lt. Leonard W. Trager, Jr., 80th Epidemiological Flight, APO 30, New York, N. Y., Acting Chief of Professional Division

Donald L. Williams, D.V.M., 2818 Frankfort St., El Paso, Tex., Post Graduate Student in Public Health, Tulane Univ.

School Health Section

Abraham Cutcher, Ed.M., M.P.H., Taylor Road, Hamburg, N. Y., Teacher of Health Science, Amherst Central High School

Roberta N. Davis, McClure School, Western Springs, Ill., Public Health School Nurse

Dental Health Section

Charles W. Gish, D.D.S., 850 Warfield Ave., Oakland, Calif., Senior Asst. Dental Surgeon, USPHS

James B. Somerall, Coca-Cola Bottling Company of Rhode Island, Providence, R. I., Vice-President and General Manager

Medical Care Section

Charles E. Braithwaite, 298 Main St., Buffalo 2, N. Y., Administrative Asst. to Exec. Vice-President Hospital Service Corporation of Western New York

William C. Glessner, 65 West State St., Akron 8, Ohio, Office Manager and Comptroller, Akron Hospital Service

Georgianna Harmon, M.A., Stanford Univ., Div. of Physical Therapy, Stanford, Calif., Instructor in Physical Therapy

Guillermo Kaelin, M.D., 10008 Colesville Rd., Silver Spring, Md., General Director of Hospital and Social Assistance, Ministry of Public Health, Lima, Peru, S. A.

John S. Lambie, M.D., 280 Aspen, Birmingham, Mich., Deputy Medical Director, South Oakland County Dept. of Health

John T. Law, 160 Elmerston Road, Rochester, N. Y., Asst. Director, Strong Memorial Hospital

Wendell R. Lipscomb, M.D., 714 E. University, Ann Arbor, Mich., Student, Univ. of Michigan, School of Public Health

Eleanor Morris, M.S.W., 514 East Building, Hunting Towers, Alexandria, Va., Medical Social Consultant, Div. of Chronic Diseases, USPHS

Max Shain, M.P.H., 4949 Rockhill Rd., Kansas City 10, Mo., Medical Statistician, The Menorah Medical Center

Long W. Whong, M.D., M.P.H., Presbyterian Hospital, Taegu, Korea, Acting Supt.

Unaffiliated

Charles T. Caraway, D.V.M., 1430 Tulane Ave., New Orleans, La., Student, Tulane Univ., School of Medicine

Edward F. Davis, R.N., RFD No. 1, Laconia, N. H., Student, Graduate School of Public Health, Univ. of Pittsburgh

Anita Dickinson, Division of Mental Hygiene, Health Dept., Christiansted, St. Croix, Virgin Islands, Psychologist

Sarah Lee Elliott, R.N., ANS Emergency Unit, Bethel, Alaska, Head Nurse, Alaska Native Service

George M. Lipsky, M.D., P. O. Box 271, Petersburg, Va., Senior Physician, Central State Hospital

Vicente P. Musa, M.D., Apartado Aereo 1162, Barranquilla, Colombia, S. A., Medical Officer, Specialist on Insect Control, World Health Organization, Technical Assistance

Raymond W. O'Gorman, M.D., Central State Hospital, Petersburg, Va., Senior Physician

Fernando Padro, M.D., M.P.H., P. O. Box 5282, Puerta de Tierra, Puerto Rico, Asst. Chief, Bureau of Tuberculosis, Dept. of Health

Antonia Ramos, R.N., Jobos & Marina, P. O. Box 1910, Ponce, Puerto Rico, Administrative Officer, Clinica Quirurgica Dr. Pila

Henry L. Taylor, Ph.D., Laboratory of Physiological Hygiene, Stadium, Gate 27, Univ. of Minnesota, Minneapolis 14, Minn., Assoc. Professor

Irving Teitelbaum, M.D., 43-09 47th Ave., Long Island City, N. Y., Psychiatrist, Chief, Division of Mental Health, Bureau of Adult Hygiene, New York City Health Dept.

Ernestine B. Thurman, 2801 Quebec St., N.W., Apt. 731, Washington 8, D. C., Medical Entomologist, USPHS

Takeko Wakiji, 16 E. 16th St., New York 3, N. Y., Secy. to Medical Director, Sidney Hillman Health Center

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SCHOOLS OF PUBLIC HEALTH ACCREDITED FOR 1953–1954

The Executive Board of the American Public Health Association, on May 22, 1953, took favorable action on the recommendation of the Committee on Professional Education concerning accreditation of schools of public health. Eleven schools are accredited for the degree of Master of Public Health (M.P.H. in the United States, Diploma of Public Health or D.P.H. at the University of Toronto). Nine of the schools are accredited also for the degree of Doctor of Public Health (Dr.P.H.). Five are accredited for master's degrees other than the M.P.H., with specialization in public health education.

The schools accredited for the academic year 1953–1954, with types of degrees for which they are accredited and names of deans or directors, follow:

Institutions Accredited by the American Public Health Association for the Academic Year 1953–1954

Institution	*Degrees for which Accredited*		
	Master of Public Health (M.P.H.)	*Doctor of Public Health (Dr.P.H.)*	*Master's Degree in Public Health Education other than the M.P.H.*
CALIFORNIA, UNIVERSITY OF School of Public Health Berkeley 4, Calif. C. E. Smith, M.D., Dean	X	X	
COLUMBIA UNIVERSITY School of Public Health New York 32, N. Y. H. W. Brown, M.D., Director	X	X	X
HARVARD UNIVERSITY School of Public Health Boston 15, Mass. J. S. Simmons, M.D., Dean	X	X	X
JOHNS HOPKINS UNIVERSITY School of Hygiene and Public Health Baltimore 5, Md. E. L. Stebbins, M.D., Director	X	X	
MICHIGAN, UNIVERSITY OF School of Public Health Ann Arbor, Mich. H. F. Vaughan, Dr.P.H., Dean	X	X	
MINNESOTA, UNIVERSITY OF School of Public Health Minneapolis 14, Minn. G. W. Anderson, M.D., Director	X		X
NORTH CAROLINA, UNIVERSITY OF School of Public Health Chapel Hill, N. C. E. G. McGavran, M.D., Dean	X	X	X
PITTSBURGH, UNIVERSITY OF Graduate School of Public Health Pittsburgh 13, Pa. Thomas Parran, M.D., Dean	X	X	
TORONTO, UNIVERSITY OF School of Hygiene Toronto 5, Ontario, Canada R. D. Defries, M.D., Director	X[1]		
TULANE UNIVERSITY Department of Public Health New Orleans 13, La. M. E. Lapham, M.D., Dean	X	X	
YALE UNIVERSITY Department of Public Health New Haven, Conn. Ira V. Hiscock, Sc.D., Chairman	X	X	X

[1] Diploma in Public Health, D.P.H.

HOTEL RATES

81ST ANNUAL MEETING

NEW YORK, N. Y., NOVEMBER 9–13, 1953

The form below is for your convenience in making hotel reservations. Please mail directly to the hotel of your choice. Those listed are West Side hotels holding rooms for Association delegates. The Statler and New Yorker are headquarters.

Hotel	*Address*	*Single*	*Double*	*Twin-Bedded*
Governor Clinton	7th Avenue & 31 Street	$5.50– 7.00	$7.50–10.00	$9.50–12.00
Henry Hudson	353 West 57 Street	4.00– 6.00	7.00–11.00	8.00–12.00
McAlpin	Broadway & 34 Street	5.00– 9.00	8.00–13.00	9.00–13.00
New Yorker	8th Avenue & 34 Street	5.00– 9.00	8.50–15.00	9.50–16.00
Statler	7th Avenue & 32 Street	5.50–10.00	8.50–12.00	9.50–17.00
Taft	7th Avenue & 50 Street	5.00– 7.75	9.75–10.75	10.50–11.50

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HOTEL RESERVATION FORM

AMERICAN PUBLIC HEALTH ASSOCIATION

81ST ANNUAL MEETING AND MEETINGS OF RELATED ORGANIZATIONS

NOVEMBER 9–13, 1953

PLEASE RESERVE:

Single Room with Bath at $..... per day

Double Room with Bath at $..... per day

Twin-bedded Room with Bath at $..... per day

Arrival: November ..... Hour ..... Departing: November ..... Hour ....

NAMES OF ALL OCCUPANTS: *ADDRESSES:*

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MAIL CONFIRMATION TO: Signed: .....

Address: .....
City Zone State

MAIL THE FORM TO THE HOTEL OF YOUR CHOICE

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Medical Directors—Vacancies exist for (1) **Assistant Director,** department of public health, (2) **Director of Cancer Control,** and (3) **Director of Heart Disease Control.** $9,000 per year. New Mexico Dept. of Public Health, P. O. Box 711, Santa Fe, N. M.

Medical Health Officer—for an established county health department of 37,000 in northwestern Illinois. $7,200–$9,000, plus travel allowance. Qualified physician may start above minimum. President, Lee County Board of Health, 123 E. First St., Dixon, Ill.

Health Officer—Berwyn Public Health District. Population 52,500. Modern health center building. Entirely residential suburban community 10 miles west of Chicago; city zoned, nonindustrial. Automobile furnished. Full-time position. $11,000–$15,000. **Health Officer**—Champaign-Urbana Public Health District. Bi-township health department serving population of 58,385. University town, excellent schools. $8,500. A qualifying examination to establish an eligible list for the above 2 positions will be held in mid-August. Ronald R. Cross, M.D., Director, Illinois Dept. of Public Health, Springfield, Ill.

Tuberculosis Controller—to direct statewide tuberculosis control program serving 48 local health departments, 23 tuberculosis sanatoriums. Must be experienced and eligible for Michigan license. Box **PH-37,** Employment Service, APHA.

Executive Secretary—San Francisco Tuberculosis Association. Applicant must be a graduate of an accredited college or university; must have 5 years of experience in administrative public health work or 2 years' experience and master's degree in public health, man or woman, preferably about 40 years of age. Must have sound health, administrative ability, and outstanding qualities of leadership. Salary open. Hiram W. Johnson, 3rd, President, San Francisco Tuberculosis Association, 604 Mission St., San Francisco 5, Calif.

Sanitary Engineers—to work in California state public health program of water supply, waste disposal, and vector control. Opportunity for advancement. Two years' experience, including at least one in sanitary or public health engineering, and college degree. Civil or chemical engineering experience or training applicable. $395 a month with periodic raises to $481. Recruitment Section, State Personnel Board, 1015 L St., Sacramento 14, Calif.

Sanitary Engineer—County health department serving population of approximately 125,000. Responsible for environmental sanitation program. Required: baccalaureate degree in sanitary engineering or civil engineering (sanitary engineering option), and experience. $375 per month. Travel allowance. **Medical Social Consultant**—County health department serving population of approximately 125,000. Responsible for medical social evaluation and medical social casework in select areas of public health program. Required: baccalaureate degree in recognized school of medical social work and at least 2 years' experience in medical social work in recognized institution or agency. Health Officer, P. O. Box 626, Annapolis, Md.

District Health Officer—Benton-Franklin Health District, Pasco, Wash. Well qualified staff and new health department building. $8,676–$10,368, plus travel expenses. M.P.H. degree plus 3 years of experience preferred. Qualified health officer may start above minimum. Applicants must be eligible to practice medicine in State of Washington. **Head, Maternal and Child Health and Crippled Children's Services**—State department of health. $9,072–$11,328. Qualified applicant may start above minimum. M.P.H. degree and 3 years of related experience required. Applicants must be eligible to practice medicine in State of Washington. Well qualified and experienced staff. J. A. Kahl, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Senior Public Health Physician (Communicable Disease Control) and **Assistant District Health Officer**—$6,801–$8,231, appointments at $7,373. Qualifications: M.D. from a recognized school and completion

of a satisfactory internship; New York State license or eligibility for one; either 3 years of satisfactory full-time medical experience of which 2 years must have been full-time with a public health department or an M.P.H. degree and 6 months of full-time health department experience. Experience must have been within the last 5 years. Examination open to noncitizens. Applications will be received until further notice. **District Health Officer**—New York State Department of Health. $8,350–$10,138. Qualifications: M.D. from a recognized school and completion of a satisfactory internship; New York State license or eligibility for one; either 5 years of satisfactory full-time medical experience of which 3 years must have been full-time experience with a health department or an M.P.H. degree and 2½ years full-time health department experience. Experience must have been within the last 5 years. Examination open to noncitizens. Applications will be received until further notice. Examinations Division, New York State Dept. of Civil Service, 39 Columbia St., Albany, N. Y.

District Health Officer—Two full-time positions, one in eastern and one western Montana. Population about 20,000. $7,800–$9,750, plus car mileage. Entrance salary up to $9,300 depending on qualifications. Must be eligible for Montana medical licensure. Joint Merit System, 338 Sam W. Mitchell Bldg., Helena, Mont.

Dental Hygienist—Starting salary is $3,251, with maximum $3,731 reached after three annual pay increases. Must have, or be eligible for a license to practice as dental hygienist in New York State. Students enrolled in the last term of an approved course may also apply. Must be residents of New York State. New York State Dept. of Civil Service, State Office Bldg., Albany 1, N. Y.

Bacteriologist—Santa Barbara County Health Department. Must possess California license or be able to secure one. To take full charge of the public health laboratory which is in Santa Maria, Calif. $307–$373 per month. Joseph T. Nardo, M.D., P. O. Box 119, Santa Barbara, Calif.

Senior Public Health Nurse—County health department serving approximately 125,000 population. Supervisory responsibility in local public health nursing program, including maternity care. Required: baccalaureate degree in public health nursing and at least 2 years' public health experience. Car provided. Health Officer, Box 626, Annapolis, Md.

Two Public Health Nurses—County nursing service under qualified supervisor. Central Minnesota county. Car required. Maximum state mileage allowed. $270–$310. Janice M. Maltby, Courthouse, St. Cloud, Minn.

Certified Public Health Nurse—for a generalized program in a county of 37,000; 100 miles west of Chicago. Car essential. $235–$300 per month with a travel allowance of $65 per month and 3 weeks' vacation. President, Lee County Board of Health, 123 E. First St., Dixon, Ill.

Public Health Nurses—to augment staff in county health department. Permanent Civil Service appointments around July 1, 1953. Requirements: Age 21–54, registration as public health nurse in California; $296–$360; tentative July 1, 1953: $311–$378. County Civil Service, 402 Civic Center, San Diego 1, Calif.

Executive Director—generalized public health nursing service in rural and urban area of 47,000 population. Salary open. One hour from New York City. West Essex Public Health Nursing Association, 573 Bloomfield Ave., Verona, N. J.

Public Health Nurse—with training and experience; duties to include supervision. Salary from $315 up, depending on training and experience. 35-hour week. Defiance County Board of Health, Box 293, Defiance, Ohio.

Public Health Nurses—generalized program in southern California county of 230,000 population. $319–$395; 3-week vacation. Car furnished or 7½ cents a mile. Orange County Personnel Dept., 644 N. Broadway, Santa Ana, Calif.

Public Health Nurse—for generalized city and school program in a rapidly expanding city of 30,000 population. $300–$380 per month, plus $25 a month car allowance. Must have a public health nursing certificate. Assistant City Manager, City Hall, Ontario, Calif.

Public Health Nurses—for generalized program, including school nursing, at university training center. Must have completed public health nursing course and have valid license as registered nurse. $307–$373. Mileage paid or car furnished. Kern County Personnel Dept., 3805 Chester Ave., Bakersfield, Calif.

Public Health Nursing Consultant—Requirements: California R.N. license; California public health nurse certificate; within the last 10 years experience of 2 years in generalized public health nursing and 2 years in a public health administrative, supervisory, or teaching capacity. Involves travel in several counties. Resi-

dence not necessary. Dept. PHN6, Personnel Office, Public Health, Room 755, Phelan Bldg., 760 Market St., San Francisco 2, Calif.

Supervisor-Consultant Nurse—Maternal child health service. Also field staff nurses. Combination agency in a city of 250,000. Ruanna S. Gordon, Executive Director, Visiting Nurses Association, 401 Municipal Bldg., Dayton 2, Ohio.

Director of a Hospital Department of Public Health Services—R.N. with a B.S. degree, M.A. desirable, and at least 5 years of supervisory and administrative experience. To direct a public health nursing service, an outpatient department with 22 clinics, and a department of physical medicine. Salary open. Personnel Office, Englewood Hospital, Englewood, N. J.

Public Health Nurse—for generalized public health nursing program, including school health service in a semirural area. $307–$373. Car furnished. Mrs. Judith A. Davies, Director of Public Health Nursing, Santa Barbara County Health Dept., P. O. Box 119, Santa Barbara, Calif.

Public Health Nurse—City of Flint. $3,783 with automatic increments to $4,498 in four years. Generalized nursing program in an official agency. Travel allowance for use of personal car. Flint Civil Service Commission, City Hall, Flint, Mich..

Qualified Staff Nurses—for a well established county health department. Generalized public health nursing program. Central New York, in the Finger Lakes country. $2,850–$3,350 with five yearly increments. Car furnished. Near large university carrying public health nursing program. Dr. Joseph F. Rudmin, Health Commissioner, Cortland County Health Dept., Court House, Cortland, N. Y.

All communications on the following advertisements should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

WANTED OPPORTUNITIES: (a) Public health physician; Diplomate; twelve years' administrative experience. (b) PH nursing administrator; AB, MPH; seven years, supervisor, city health department. (c) Health educator; M.S., DPH, Ed.D.; five years, associate professor, public health; seven years, director health department. Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED: (a) Public health physician to serve as medical consultant; major philanthropic organization. (b) Associate professor, preventive medicine and public health; university medical school; $10,000. (c) PH nurse to direct outpatient clinic, 250-bed hospital; $6,000. (d) Chief, metropolitan department of nursing; $7,200–$8,350; East. (e) Assistant professor public health nursing; university school; $6,000. (f) Health educator; faculty appointment; five years' teaching experience required. (g) Health educator to serve as program secretary, state health association; university city. Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

WHO NEWS

Sixth World Health Assembly

The 6th World Health Assembly, which is the legislative body of WHO, met in Geneva from May 5–22. Dr. Murched Khater, minister of health of Syria, was elected president by acclamation to succeed Dr. Juan Salcedo, Jr., Philippine secretary of health, president of the 5th Assembly. Vice-presidents elected were:

Dr. Saiful Anwar, Senior Public Health Officer, Indonesia
Dr. Roberto C. Bustamante, Undersecretary of State for Public Health and Welfare, El Salvador
Dr. Melville D. Mackenzie, Principal Medical Officer, Ministry of Health, United Kingdom

Also elected as chairman of the Committee on Program and Budget was Dr. Olivier Leroux, assistant director of National Health and Welfare, Canada; and as chairman of the Committee on Administration, Finance and Legal Matters, Thomas J. Brady, assistant secretary, Department of Health, Ireland.

These officers are *ex officio* members of the General Committee of the Assembly, composed of representatives of 9 countries — Cuba, France, Lebanon, Netherlands, Pakistan, Philippines, Union of South Africa, United States, and Yugoslavia.

New Director-General Elected

Marcolino G. Candau, M.D., M.P.H., deputy director of the Pan American Sanitary Bureau, which is WHO's Regional Office for the Americas, was elected director-general by the Assembly for a five-year term, on the previous nomination of the Executive Board. He succeeds the first director-general, Dr. Brock Chisholm, who has held the post for the past 7 years.

Before joining the PASB staff, Dr. Candau was for two years assistant director-general of WHO. At the time he left Geneva in 1951, Dr. Chisholm paid him the following tribute:

"Dr. Candau has been one of the main architects of the WHO policy and program in relation to advisory services to governments, especially in promotion of fundamental public health services. His wide practical experience in the improvement of economically underdeveloped areas has been of invaluable assistance to WHO and has been an essential factor in the development of WHO's program of technical assistance."

Dr. Candau is a member of the American Public Health Association, having served as a vice-president in 1949–1950.

Bernard Prize to Dr. Frandsen

Dr. Johannes Frandsen was awarded WHO's third annual Leon Bernard Foundation Prize at the 6th World Health Assembly, for his "outstanding contribution and practical achievements in the field of social medicine." He has been director-general of the National Health Service of Denmark since 1928, during which time he has organized the Danish hospital system and established a hospital in each of Denmark's 21 counties, organized tuberculosis hospitals as dispensary centers, and planned much of Denmark's preventive health legislation.

The Bernard Prize consists of a medal and 1,000 Swiss francs. Earlier recipients were Professor René Sand of Belgium in 1951 and, in 1952, Professor C.-E. A. Winslow, professor-emeritus of public health, Yale University, and editor, *American Journal of Public Health*.

Nepal Accepted for Membership

On the proposal of representatives of India and Switzerland and on recom-

mendation of the Committee on Administration, Finance, and Legal Matters, the Assembly accepted Nepal as the 80th full member of WHO and assigned it to the South-East Asia Region. There are also three associate members. Also accepted was a Philippine proposal enabling the Republic of China on its own request to resume active participation. Although the Chinese assessment remains at the old level of between $400,000 and $500,000, it was voted to accept $10,000 for 1954 together with $125,000 on account of arrears, and to reconsider the matter again at the 7th Assembly.

Financial Position

During 1952, 95 per cent of the contributions due from WHO active members were collected. Hence, with respect to its regular budget, the financial position of WHO is wholesome, as reported by Milton P. Siegel, assistant director-general of the Department of Administration and Finance. However, he stressed, as had Director-General Brock Chisholm earlier in his 1952 report, the gravity of the situation created by the curtailment of technical assistance funds. Some new activities had been postponed, others, because of generous UNICEF assistance, had been transferred to regular funds, and others assumed by PASB.

A regular budget of $8,497,700 was adopted, more than 50 per cent of which was allocated for advisory services. Nearly one-fifth will be expended for central technical services, 14 and 12 per cent respectively for regional offices and administrative services, and the remaining 5 per cent for expert committees, conferences, and organizational meetings.

Other Decisions

The Assembly recommended, for consideration by the UN Economic and Social Council and its Narcotic Commission, that the production and importation of heroin be abolished throughout the world.

It further recommended that:

WHO include a dental program in 1955.

The Executive Board initiate a detailed study of the means necessary to develop an international campaign against smallpox.

The Regional Committee of the Eastern Mediterranean be divided into two subcommittees "the membership of which would be in conformity with agreement of the countries concerned." This decision was reached in order that regional committee meetings might be resumed. They had been discontinued because of the refusal of Arab states to join in any meetings with Israel.

The "plurality" principle be approved under which more than one nongovernmental agency in the same field may enter into official relationship with WHO.

The 7th World Health Assembly be held in Geneva in 1954 and exploration be made of the feasibility of accepting the invitation of the government of Mexico to meet in Mexico City in 1955.

Final Session

The final session was addressed both by the retiring director general, Dr. Brock Chisholm, and by the new secretary general of the United Nations, Dag Hammarskjold. Dr. Chisholm's address appears in full in Press Release H/1052 of May 22 (Press and Publications Bureau, United Nations, N. Y.) It stresses once more the interdependence of health campaigns, capital investment for production, stabilized markets for distribution, and adequate educational and cultural facilities. Further, he emphasized the importance of these constructive activities as a deterrent to war. "The glaring contrast between the tremendous sacrifices we are forced to make for stockpiling instruments of war and destruction, and the insignificant amount of energy and money we spend for constructive purposes, is symbolic of the challenge modern man is facing."

Perhaps having in mind the pressures that have been put upon the United Nations in New York, Dr. Chisholm expressed his gratitude to the federal

government of Switzerland, and to the Canton and the City of Geneva. "Never," said he, "has any of these authorities attempted to influence the policies or attitudes of the World Health Organization, either directly or indirectly. For this forbearance I should like to record my deepest gratitude and appreciation."

Mr. Hammarskjold emphasized the interrelationship of activities of the various specialized agencies of the United Nations and the need to keep development in various fields "in balance."

Executive Board Meets

Following the 6th World Health Assembly, the 12th meeting of WHO's Executive Board was held in Geneva beginning on May 28. Its chief work was to carry out the decisions made by the Assembly.

Dr. Melville D. Mackenzie, principal medical officer of health of Great Britain, was elected chairman. Vice-chairmen are Drs. Felix Hurtado and W. A. Karunaratne, representatives of Cuba and Ceylon, respectively. Rapporteurs are Drs. Selim Hayek and H. van Zile Hyde, representing respectively Lebanon and the United States. The six member states entitled to designate representatives on the Executive Board for the coming year are Austria, Costa Rica, Indonesia, Iraq, Switzerland, and the United States. The 12 states with holdover representation are Belgium, Brazil, Canada, Ceylon, Cuba, Denmark, Greece, Iran, Lebanon, Liberia, New Zealand, and the United Kingdom.

National Nursing Resources Studies

As an aid in carrying out one of the recommendations made by the first meeting in 1950 of WHO's Expert Committee on Nursing, *Guide for National Studies of Nursing Resources* has been published. The Expert Committee had urged member governments to study the supply of nursing personnel, the number needed for existing and prospective health programs, the effectiveness with which nursing resources are used, and the roadblocks in the recruitment of nurse candidates.

The report was prepared by Margaret G. Arnstein, chief, Division of Nursing Resources, U. S. Public Health Service, together with a working-group at the Geneva headquarters. Before final revision of the *Guide*, it was used in WHO-assisted studies of two countries and a draft was circulated to members of the Expert Advisory Panel on Nursing and to WHO regional offices. Included are sample forms for use in obtaining and compiling basic information. Columbia University Press, International Documents Service, 2960 Broadway, New York 27; 20¢.

CANADA EXTENDS HEALTH SERVICES

On the suggestion of the Ministry of National Health and Welfare, the Canadian government has approved a plan to extend the National Health Program. Through an additional $42,000,000 for the next five years, three new federal health grants are being added to the ten hitherto in existence. The new grants are:

Child and Maternal Health Grant will be used to aid provinces in providing better health care for mothers and children particularly in equalizing the presently unequal services among the separate provinces. For 1953, the cost is estimated at $500,000, rising eventually to $2,000,000, annually.

Grant for Rehabilitation Services is to provide improved health services for disabled citizens, especially to fill the gaps in existing programs and for the training of professional rehabilitation workers. Beginning at half that amount, the eventual annual cost is expected to be $1,000,000.

Laboratory and Radiological Services Grant is designed to provide better facilities and services to help doctors diagnose their patients' illnesses and, in the words of the Minister of Health and Welfare, "to bring the latest techniques of medical science into the service of the whole Canadian people." This is the largest

of the new grant programs, providing $4,300,000 the first year, and rising to $7,800,000 the fifth year.

The first two grants will be divided among the provinces with a flat amount of $10,000 to each province, the balance to be divided in the first instance according to the number of births and infant deaths. The rehabilitation grant balance will be distributed on the basis of population. The laboratory services grant will provide 30 cents per capita the first year and rise 5 cents per year up to a maximum of 50 cents. In general, the provinces will match the federal funds.

In announcing the plan to the House of Commons, which later approved it, the Minister of National Health and Welfare, the Hon. Paul Martin said, "Nothing could better mark the success of the National Health Program over its first five years than the government's decision to move forward on three entirely new fronts." Among the achievements that have been made possible by the federal grants, Mr. Martin listed:

60 per cent of the population serviced by health units

2,000,000 chest x-ray examinations annually; the tuberculosis death rate cut in half; 25,000 tuberculosis patients provided with streptomycin and other drugs free; 500,000 infants given BCG protection

Hospital facilities established in 144 communities

5,000 health workers trained and nearly that number added to hospital staffs and other health services

60 additional mental health clinics

Cancer diagnostic services provided for 100,000 persons

46,000 additional hospital beds provided.

LOUISIANA HEALTH SOCIETY MEETING

The 1953 annual meeting of the Louisiana Association of Public Health Workers was held in Lafayette, April 9–10. More than 250 active members of a total membership of 656 were present. A new Section on Health Education was established. The Louisiana group is taking steps to become affiliated with the American Public Health Association.

Officers for 1953–1954 are:

President—Thurman D. Boaz, Jr., M.D., assistant director, Division of Local Health Services, State Department of Health

First Vice-President—Murphy P. Martin, M.D., director, Iberia Parish Health Unit

Second Vice-President—John Lemasson

Secretary-Treasurer—George H. Hauser, M.D., director, Division of Laboratories, State Department of Health

MIDDLE STATES ASSOCIATION MEETS

The Middle States and Kansas Public Health Associations met jointly in Topeka, April 13–15. Of the nearly 400 persons attending, 216 were from Kansas, 45 from outside the area, and the remainder from 9 of the 12 Middle States represented. Among the topics discussed were International Health, Disinfection of Swimming Pool Waters, and Epidemiological Studies Incriminating Histoplasmosis as a Cause of Epidemic Pulmonary Disease.

The following officers were elected:

President—Robert N. Barr, M.D., deputy executive officer, Minnesota Department of Health

President-Elect—Vernon N. Winkle, M.D., assistant state health officer and director of local health services, Kansas State Board of Health

Vice-President—Milton Feig, M.D., director, Division of Preventable Diseases, Wisconsin State Board of Health

Secretary-Treasurer—Leonard C. Murray, Ph.D., director of health education, Iowa State Department of Health

The 1954 meeting of the association will be held in Minneapolis.

BORDER PUBLIC HEALTH ASSOCIATION

The United States-Mexico Border Public Health Association held its 11th annual meeting jointly in the cities of El Paso, Texas and Juarez, Chihuahua, April 8–10.

With Dr. Salvador Molina Vélez of Monterrey, Nuevo León, as president, about 300 persons attended the three day sessions of both scientific and social programs. Among the speakers were Dr. Manual Martinez Baez, director of the Institute of Tropical Diseases and School of Public Health, Mexico City; Dr. Frederick J. Brady, international health representative, U. S. Public Health Service; Dr. Karl F. Meyer, director, Hooper Foundation, University of California; and Dr. Miguel E. Bustamante, secretary general, Pan American Sanitary Bureau. The last named, together with Texas state health officer, Dr. George W. Cox, were made honorary members of the association.

Newly elected officers are:

President—Richard F. Poston, senior sanitary engineer, Regional Office, U. S. Public Health Service, Dallas

President-Elect—Dr. Arturo Rico Gonzalez, chief, Coordinating Service for Health and Welfare, State of Chihuahua

Vice-Presidents — Dr. Carlos Hernandez Aguirre, chief, Joint Health and Welfare, Juarez

J. Harold Tillman, senior sanitary engineer, El Paso City-County Health Department

Secretary—Dr. Sidney B. Clark, chief, El Paso District Office, Pan American Sanitary Bureau

The 1954 meeting will be held in Albuquerque, N. M., in April.

NEW MERCK RESEARCH CENTER DEDICATED

The new research center of the Merck Institute for Therapeutic Research in Rahway, N. J., was dedicated early in May. Present for the ceremonies were about 400 scientists, educators, government officials, and business leaders, including four winners of the Nobel Prize in Medicine—Sir Alexander Fleming and Drs. Edward C. Kendall, Otto Loewi, and Selman A. Waksman. (Drs. Kendall and Waksman are also winners of Lasker Awards in Public Health.)

Among the speakers at the ceremony were Governor Alfred E. Driscoll of New Jersey and Alan Gregg, M.D., vice-president of the Rockefeller Foundation. In speaking of medical education, Dr. Gregg said in part, "It is high time we reviewed the four years of medicine from the point of view of what abilities and capacities a doctor will be using . . . the capacity to read with discrimination so as to compare his observations and reasoning with those of others. And a fourth capacity—to put himself in the place of his patient."

The Merck Institute was founded in 1933 as a nonprofit institution to investigate the mode of action and therapeutic efficacy of new drugs and chemicals. Dr. Hans Molitor, who was formerly professor of pharmacology at the University of Vienna, has been its director since its founding.

MICHIGAN CERTIFIES RESORTS

On the basis of sanitation standards recommended by the Michigan Department of Health, tourist resorts are being issued green and gold signs reading "HDA—Health Department Approved." Local health departments inspect resorts in their respective areas; in areas not served by a local health department, the state health department inspects for approval.

The certification given to resorts indicates that they have safe drinking water, clean, well ventilated buildings, clean toilets, adequate screening, safety protection, pasteurized milk, good food practices, safe disposal of garbage and other wastes, unpolluted beaches, and proper control of poisonous plants.

BULK VENDING MACHINE REGULATIONS

The National Research Council, Division of Medical Sciences, has published *Suggested Regulations for Coin-Operated Bulk Vending Machines Dispensing Beverages for the Armed Forces* for the guidance of the Armed Services.

The proposed regulations are equally applicable to civilian situations. The general make-up of the *Regulations* is similiar to that of the Public Health Service *Recommended Milk Ordinance and Code*. Each specific requirement is followed by the public health reason for the requirement. What could be considered as satisfactory compliance is then given. Single copies free from the National Research Council, Washington, D. C.

TRAILER COURT SANITATION

Trailer Court Sanitation with Suggested Ordinances and Regulations, prepared by the Division of Sanitation, Public Health Service, discusses desirable control of trailer courts from the public health standpoint. It contains recommendations for water and sewage facilities, for common buildings, and for parking plot layout. A suggested ordinance is included, together with regulations for the operation of trailer courts, that might well be adopted by a health department. The Trailer Coach Manufacturers Association printed and is distributing the publication without profit. It has made available to regional offices of the Public Health Service, a supply for free distribution of single copies to health departments. Bulk orders from the Association, 20 N. Wacker Drive, Chicago 6, 25¢.

SPEECH AND AUDIOLOGY COURSES

Graduate and undergraduate courses in Audiology and Speech Pathology are being offered each quarter by the faculty members of the Bill Wilkerson Hearing and Speech Center of Nashville, Tenn. The courses are given both at Vanderbilt University School of Medicine and at Peabody College for Teachers. Those of special interest to public health workers are Speech Problems, Testing of Hearing, and The Development of the Preschool Deaf Child.

Also, a two-week seminar—July 20–August 1—on The Speech and Hearing Handicapped Child is being given during the current summer.

Further information from Dr. W. W. Wilkerson, Bill Wilkerson Hearing and Speech Center, Nashville, Tenn.

WHERE WE ARE HEADING

"A New Look at Governmental and Voluntary Services" or what are we trying to accomplish in public and private agencies?, is the theme of the fourth annual Adirondack Workshop sponsored jointly by the National Social Welfare Assembly and Community Chests and Councils of America. To be held at Silver Bay, N. Y., August 10–14, registration is limited to 100 health and welfare executives from New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia. Three workshop sections will spend four half days, each trying to answer some of the questions about public-private responsibilities, the distribution of their services, and the ways they can increase their effectiveness.

Roscoe P. Kandle, M.D., field director of the American Public Health Association, is leader of one of the three discussion groups. Among the committee members planning the sessions are Drs. Margaret Barnard, John W. Ferree, and William R. Willard, and James G. Stone. Merrill F. Krughoff is secretary, 345 East 46th St., New York 17.

A FOOD CHEMISTRY FIRST

The *Journal of Agricultural and Food Chemistry*, Vol. I, No. 1, introduced by the American Chemical Society on April 1, 1953, is the newest of the numerous scientific publications sponsored by the society. It is a biweekly devoted to food chemistry, the biochemistry of nutrition, biochemical engineering and fermentation, and agricultural chemistry. In these areas, the journal covers fundamental and applied research; development and production; and scien-

tific, technological, and industrial news. Walter J. Murphy, editor, says that the new publication alone among scientific journals is "a common meeting ground for all the scientists and technologists concerned with food, clothing, shelter, and industrial products from agriculture." The broad field of interests and relationships in public health combined in this publication are epitomized in the words of Charles Glen King, Ph.D., quoted on the masthead, ". . . the keys used by the chemist to unlock doors inside the green leaf also fit doors inside the human body." Scientific articles, news notes, and subscriptions should be sent to American Chemical Society, 1155 Sixteenth Street, N.W., Washington 6, D. C.; $6.00 per year.

REHABILITATION TEACHING AFFILIATES

The New York Medical College and Flower and Fifth Avenue Hospital in New York City, and the Kessler Institute for Rehabilitation in West Orange, N. J., have affiliated for teaching purposes. Henry H. Kessler, M.D., medical director of the institute, is a clinical professor of rehabilitation at the New York Medical College, while Jerome Tobis, M.D., director of the Department of Physical Medicine and Rehabilitation at the New York Medical College, is on the consulting medical staff of the Kessler Institute.

HEALTH OF CHROMATE WORKERS

Studies of the health of chromate workers made in Germany prior to World War II indicated the possibility of bronchiogenic carcinoma among workers in the chrome industry. In the United States in 1945, a death occurred from bronchiogenic carcinoma, alleged to have been caused by exposure to chromates. The chromate industry, therefore, requested the U. S. Public Health Service to undertake a study of the cancer problem among chromate workers. *Health of Workers in Chromate Producing Industry*, by the U. S. Public Health Service, is the report of this study and of the findings, including an investigation of the medical records of the German chromate producers. Among its recommendations are that employees who have worked five years or more in the chromate industry should be x-rayed every three months and that local health departments "follow up all chromate workers who have worked in the industry five years or more." Gov. Ptg. Office, Washington, D. C.; 50¢.

AN ERIE RAILROAD FIRST

The Erie Railroad Company has been cited by the Public Health Service as being the first major railroad to receive Certificates of Sanitation for all dining cars in service. Only those dining cars can be certified that meet at least 95 per cent of the recommendations contained in *Handbook of Sanitation for Dining Cars in Operation* and *Handbook of Sanitation of Railroad Passenger Car Construction*. Mark D. Hollis, assistant surgeon general, Public Health Service, presented the citation to M. G. McInnis, vice-president of operations and maintenance, Erie Railroad, in Jersey City on June 3, at a special luncheon served in the final diner approved.

The railroads through their representatives cooperated in setting the standards on which the certificates are based and the inspection program is carried on cooperatively between the railroads and the Public Health Service. Leonard A. Scheele, surgeon general, in a message to the luncheon commended all the railroads, particularly the Erie, for these cooperative efforts in improving the standards of dining car construction and operation.

GETTING THE PATIENT TO THE DOCTOR

Parke-Davis is running a series of advertisements in popular national magazines, addressed to the general public. The central theme is "In the

hands of your physician, you're in good hands." The first one about the man who will have nothing to do with a doctor appeared in the *Saturday Evening Post* and *This Week* Magazine. Other subjects are "Ever See a Telegram from Your Heart?" "Is the Secret of Cancer Locked in This Cell?" Other magazines in which the advertisements will appear include *Good Housekeeping, Life, Colliers, Woman's Home Companion*. The purpose as reported is to emphasize that "medical science has a vast store of new knowledge, which is constantly increasing through research," and thus to urge that persons with ailments seek a physician's help without delay. The advertisements are further said to be "written to avoid possibility of stimulating hypochondria and encouraging self-diagnosis."

NURSE SCHOLARSHIPS BY LEGISLATURE

The 1953 session of the Minnesota State Legislature has voted a nursing scholarship fund of $75,000 for each of the next two years. Minnesota residents wishing training as professional nurses but without ability to meet the cost may receive a maximum grant of $600, those wishing training as practical nurses may receive up to $300.

Persons will be granted scholarships only after being accepted for training by one of the 22 accredited schools of nursing in the state. They must further agree to practice nursing in Minnesota for at least one year immediately following graduation. Information and application forms from Minnesota Department of Education, 333 State Office Bldg., St. Paul 1.

A similar law was enacted by the Minnesota Legislature in 1951. As a result, approximately 400 prospective nurses of the state received scholarship assistance.

CANCER RESEARCH GRANT APPLICATIONS

The Committee on Growth of the National Research Council, acting for the American Cancer Society, is accepting applications for grants-in-aid in support of cancer research. New grants becoming effective July 1, 1954, must be applied for not later than October 1, 1953. Investigators now receiving support are notified individually regarding application for renewal of these grants. During the past year the American Cancer Society, on recommendation of the Committee on Growth, has awarded approximately 250 grants totaling more than $1,700,000. A program of similar magnitude is contemplated for the coming year.

The broad scope of the research program includes fundamental studies in the fields of cellular physiology, morphogenesis, genetics, virology, biochemistry, metabolism, nutrition, cytochemistry, physics, radiobiology, chemotherapy, endocrinology and environmental cancer, as well as clinical investigations on cancer.

Application blanks and additional information from the Executive Secretary, Committee on Growth, National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

MOSQUITO CONTROL OFFICERS

At the recent annual meeting of the American Mosquito Control Association, held jointly with the Florida Anti-Mosquito Association in Daytona Beach, the following officers were elected:

President—F. C. Bishopp, assistant chief in charge of research, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture
Vice-President—R. E. Dorer, director of malaria control, Virginia State Health Department
Executive Secretary—T. G. Raley
Treasurer—L. W. Smith

CINCINNATI AND MATERNAL MORTALITY

The Cincinnati Health Department reports that for the first time in the history of the city a full year, 1952, passed without a single resident ma-

ternity death. This is in contrast to a rate of 10 per 1,000 births in 1900. Little improvement was noted until 1940 when the rate was 6.8 per thousand births. By 1950 the rate was 1 in two thousand births. The improvement is attributed to new developments in the field of antibiotics, to a readily available supply of blood, to earlier and better prenatal care by physicians, to maternity hospitals with high standards, and to a progressive obstetrical society.

A LINDEMAN PROFESSORIAL CHAIR

The New York School of Social Work, Columbia University, is establishing an "Eduard C. Lindeman Professorial Chair" to preserve the philosophy and values of the late Dr. Lindeman in education for social work. Dr. Lindeman who died in April, 1953, had been professor at the school for 26 years before his retirement in 1950. It is planned to raise $500,000 through the organization of "Lindeman Friendship Groups" in numerous cities in the United States and abroad. In announcing the Chair, Dean Kenneth D. Johnson of the school, said, "Education for social work must develop a real understanding of the democratic philosophy of human welfare." Dr. Ordway Tead said, "It is no part of this purpose to continue merely one man's doctrine, but rather to give permanence . . . to the broad philosophical outlook of a great teacher."

PERSONALS

CAROL ACKBERGER and AGNES ROBINSON are new public health nurses in the Akron (Ohio) Health Department.

ELIZABETH BAIR is assistant clerk and deputy registrar of vital statistics, Massillon (Ohio) Health Department.

MAITLAND BALDWIN, M.D., assistant professor of neurosurgery, University of Colorado School of Medicine, and WILLIAM M. HART, M.D., assistant professor of ophthalmology, Jefferson Medical College, Philadelphia, have been appointed respectively chief of neurosurgery and chief of the ophthalmology clinics, National Institute of Neurological Diseases and Blindness, Bethesda, Md.

LEONA BAUMGARTNER, M.D.,* for 16 years with the New York City Department of Health, most recently assistant commissioner in charge of maternal and child health services, has resigned to become executive director of the New York Foundation, New York City. Her successor is HAROLD JACOBZINER, M.D.,* former director of the department's Bureau of Child Health.

JACOB B. BERLIN,† sanitarian for the Near East Foundation, Iranian Area, has recently returned to Teheran, Iran, following his first home leave in the United States.

FRED C. BISHOPP, Ph.D.,* recently received a Distinguished Service Award of the U. S. Department of Agriculture for his work in organizing, conducting, and directing research in control of plant pests.

SUSAN BLIZNIAK, former assistant supervising public health nurse, Erie County (N.Y.) Health Department, is now assistant supervising nurse in the Batavia District, New York State Health Department.

ELISABETH BOEKER,* Public Health Service nurse officer, former assistant chief, Nursing Section, National Cancer Institute, and the first nurse assigned to Iraq under the U. S. Point Four Technical Aid Program, left in May for Baghdad.

RICHARD F. BOYD, M.D.,* medical director of the discontinued Boston regional office of the U. S. Public Health Service has been transferred to the San Francisco regional office serving five Pacific Coast states, Alaska, and Hawaii.

GLIDDEN L. BROOKS, M.D.,† coordinator of hospitals and clinics and professor of hospital administration, Pittsburgh Graduate School of Public Health, has been appointed the first full-time medical director, United Cerebral Palsy, New York City.

G. M. BYINGTON, M.D., Dr.P.H.,* former director, Maternal, Child and School Health, Detroit Department of Health, is now in a similar position with the Santa Clara County Department of Health, San Jose, Calif.

JOSEPH A. CHAGNON,† former sanitarian of Southbridge, Mass., is now sanitarian in Apache County, Ariz.

CATHY COVERT and JOHN LEAR are winners of the 1952 Albert Lasker Medical Journalism Awards; Miss Covert for two series of arti-

* Fellow.
† Member.

cles on community health progress, "Your Hospital—The Story of a Revolution" and "Exploring Medical Mysteries," in the Syracuse, N. Y., *Herald-Journal;* Mr. Lear, for his article in *Collier's* on surgical advances against heart disease, "Science May Give You a Second Heart."

SAMUEL J. CRUMBINE, M.D.,* "frontier doctor," and health officer of Kansas from 1904–1923, has been appointed consultant, Public Health Committee, Paper Cup and Container Institute, New York City.

WOOD W. DANIELS is now sanitarian, Yuma County (Ariz.) Health Unit.

W. S. ELLIS, M.D., Meigs County (Ohio) health commissioner, has resigned because of illness.

ALBERT G. ENGELBACH, M.D.,† former director, Mt. Auburn Hospital, Cambridge, Mass., has been made chief, Section of Planning and Operations, Special Weapons Division, Civil Defense Administration, Washington, D. C., succeeding FLOYD BEELMAN, M.D.,* resigned to enter private practice in Wichita, Kans.

CARINE ESCH and IVA HARLIN, public health nurses, have been added to the Yuma County (Ariz.) Health Unit staff.

TOM S. GABLE,† former director, Division of Food and Sanitation, Flint (Mich.) Department of Public Health, is now public health engineer, Student Health Center, University of Nebraska, Lincoln.

JAMES E. GOOGE, M.D.,* formerly with the Tennessee Valley Authority and from 1936 to 1938 assistant director, Nebraska Department of Health, is now director, Lincoln City-Lancaster County Department of Health, Neb.

JOHN A. KAHL, M.D., M.P.H.,* has been reappointed acting director of the Washington State Department of Health, Seattle, for a four-year term.

SAMUEL B. KIRKWOOD, M.D.,* assistant professor of maternal health, Harvard University School of Public Health, has been nominated Massachusetts commissioner of public health, succeeding VLADO A. GETTING, M.D., Dr.P.H.,* whose term expired.

MAC H. MCCRADY,* chief, Division of Laboratories, Quebec Ministry of Health, Montreal, received a D.Sc. *Honoris Causa* at the Convocation of McGill University in Montreal on May 27, recognizing his long contributions through the public health laboratory.

JOSEPH F. NEE,† assistant director the past year, has been appointed director of fund raising, National Foundation for Infantile Paralysis, to succeed WARREN D. COSS, resigned to establish his own business.

JOHN J. NELSON, acting chief since July, 1952, has been made chief, Bureau of Chemistry, New Jersey Health Department, succeeding the late FRANK SPINDLER.

RUTH PAUL is the new social work supervisor in the Northeastern District Health Office of the Massachusetts Department of Health with headquarters in Wakefield. She succeeds FRANCES HEALD, now assistant supervisor of the Medical Social Training Project of the Department.

HELEN ROBERTS, M.D.,* lecturer in public health practice, Harvard School of Public Health, is now chief, First Aid and Ambulance Section, Massachusetts Civil Defense Medical and Health Division.

EINAR A. OLSEN, former director of health and physical education, Jonesport, Me., public schools, is now health education director, Essex County (Mass.) Health Association.

ANTHONY J. J. ROURKE, M.D.,* executive director, Hospital Council of Greater New York, has been appointed to the advisory council of six civilians to the assistant to the Secretary of Defense (health and medical), which office, in charge of MELVIN A. CASBERG, M.D., has replaced the Armed Forces Medical Policy Council.

WILLIAM H. SEBRELL, JR., M.D.,* Assistant Surgeon General, Public Health Service, and director, National Institutes of Health, Bethesda, Md., has received the 1952 Joseph Goldberger Award in Clinical Nutrition of the Council on Foods and Nutrition, American Medical Association, for his explorations in the relationships of nutrition to human and animal health.

G. MILTON SHY, M.D., former chief, Neurological Service, University of Colorado Medical School, has been appointed chief of clinical research, National Institute of Neurological Diseases and Blindness, Bethesda, Md.

LEWIS B. SIMS,† staff adviser, Division of Engineering Resources, Public Health Service, Washington, D. C., has returned to his post after a semester as visiting professor of political science, University of California at Los Angeles, teaching courses in public administration.

IMELDA SPRATT,† former supervisor, Topeka-Shawnee County Health Department, is now a generalized consultant nurse, Kansas State Board of Health, serving Butler, Greenwood, and Cowley Counties.

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* Fellow.
† Member.

GEORGE S. STEVENSON, M.D., medical director, National Association for Mental Health, New York City, in May received a Lord and Taylor Award of $1,000 and a citation in recognition of his pioneering in the field of mental health.

DAVID VAN DER SLICE, M.D., M.S.P.H.,* director, Department of School Health Services, Oakland Public Schools, was elected president of the American School Health Association, California Division, at its recent annual meeting in Los Angeles.

BJORN VESTERGAARD, M.D., Danish psychiatrist and director of biochemical research at Sct Hans Hospital Ved Roskilde, Denmark, has been named research scientist for a special research project in progress at Rockland (N.Y.) State Mental Hospital.

GERTRUDE VETTER, B.S.P.H.N., former staff nurse, National Foundation for Infantile Paralysis, is with the DuPage County Department of Health, Villa Park, Ill.

ROBERT L. VOUGHT, M.D., regional health director, White Plains Region, New York State Health Department,† has resigned to become assistant professor of epidemiology, Columbia University School of Public Health, New York City.

LAWRENCE WELTI, M.D., is now Napa County (Calif.) health officer, succeeding KENNETH W. HAWORTH, M.D.,† who is now with the California Department of Mental Hygiene, Sacramento.

PATRICIA YELLE,† formerly health educator, Massachusetts Division, American Cancer Society, is now health educator, Minneapolis Division of Public Health.

EDMUND G. ZIMMERER, M.D.,* director, Division of Cancer Control, Iowa State Department of Health, has been appointed commissioner, succeeding WALTER L. BIERRING, M.D.,* retired after 20 years of service.

DEATHS

A. C. BACHMEYER, M.D., D.Sc.,† of Loveland, Ohio, on May 22 (Public Health Education Section).

L. C. BILLINGS,† chief chemist, Water & Sewage Treatment, Dallas (Tex.) City Health Department, on September 9, 1952 (Laboratory Section).

E. H. LEWINSKI CORWIN, Ph.D.,* executive secretary, Committee on Public Health Relations, New York Academy of Medicine and a charter member of the APHA (Statistics Section).

W. THURBER FALES, Sc.D.,* director, Statistical Section, Baltimore (Md.) City Health Department, on May 21 (Statistics Section).

RAYMOND HUSSEY, M.D.,* scientific director, Council on Industrial Health, American Medical Association, Chicago, Ill., on April 15 (Industrial Hygiene Section).

HAROLD A. KEMP,† director of sanitary engineering, Engineering Department, District of Columbia, on February 16 (Engineering Section).

CLYDE C. KENNEDY,* consulting sanitary engineer, San Francisco, Calif., on April 21, 1952 (Engineering Section).

EARL B. PHELPS,* professor of sanitary science, Civil Engineering Department, University of Florida, Gainesville, on May 29 at the age of 76 (Engineering Section).

J. ALPHONSE LAPIERRE, M.D., D.P.H.,† medical officer of health, Ministry of Health, St. Johns, Quebec, Canada, in May (Public Health Education Section).

PHILIP VAN INGEN, M.D.,* of New York City on March 28 at the age of 77 (Maternal and Child Health Section).

CONFERENCES AND DATES

American Public Health Association. 81st Annual Meeting, New York, N. Y., November 9–13.

State and Regional Public Health Meetings:

Arkansas Public Health Association. La-Fayette Hotel, Little Rock. October 29–30.

Colorado Public Health Association. Antlers Hotel, Colorado Springs. September 10–11.

Florida Public Health Association. Tampa. October 22–24.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis. September 24–25.

North Carolina Public Health Association. Carolinian Hotel, Nag's Head, N. C. September 10–12.

North Dakota Public Health Association. Ray Hotel, Dickinson. October 26–27.

Oklahoma Public Health Association. Mayo Hotel, Tulsa. December 3–5.

Pennsylvania State Health Conference. State College, Pa. August 17–20.

Meetings of Other Organizations Coming in July, August, and September:

American Dental Association. 94th Annual Session. Cleveland, Ohio. September 28–October 1.

American Hospital Association. San Francisco, Calif. August 31–September 3.
American Pharmaceutical Association. Annual Convention. Salt Lake City, Utah. August 16–23.
American Veterinary Medical Association. Annual Meeting. Toronto, Ontario, Canada. July 20–23.
Governor's Conference. Olympic Hotel, Seattle, Wash. August 2–5.
International City Managers' Association. Hotel Statler, Los Angeles, Calif. September 20–24.
International Congress for Medical Librarians. London, England. July 20–25.
International Congress of Microbiology. Rome, Italy. September 6–12.
International Congress of Radiology. Copenhagen, Denmark. July 19–25.
International Congress of the United States Conference of Mayors and the Canadian Federation of Mayors and Municipalities. Montreal, Canada. September 21–24.
International Congresses of Tropical Medicine and Malaria. Istanbul, Turkey. August 28–September 4.
International Veterinary Congress. Stockholm, Sweden. August 9–15.
National Association of Sanitarians. Milwaukee, Wis. September 8–11.
National Audio Visual Association. Chicago, Ill. August 1–4.
National Conference on Physicians and Schools. Moraine-on-the Lake Hotel, Highland Park, Ill. September 30–October 2.
National Council on Family Relations. East Lansing, Mich. September 1–3.
National Medical Association. Annual Meeting. Nashville, Tenn. August 10–14.
National Recreation Association. Philadelphia, Pa. September 28–October 2.
United States Conference of Mayors. Montreal, Quebec. September 21–24.
World Conference on Medical Education. London, England. August 22–29.
World Congress of the World Confederation for Physical Therapy. London, England. September 7–12.
World Medical Association. The Hague, Netherlands. August 31–September 7.

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New York Hotel Trades Council and Hotel Association Health Center, Inc., New York, N. Y.
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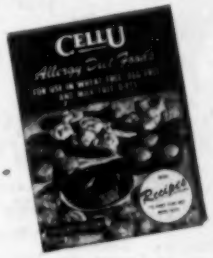

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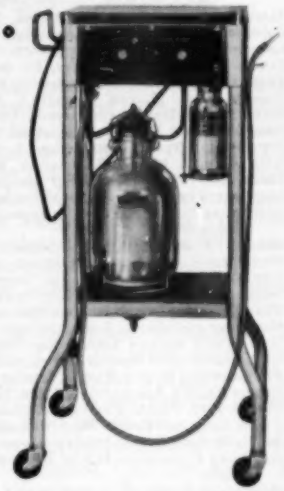

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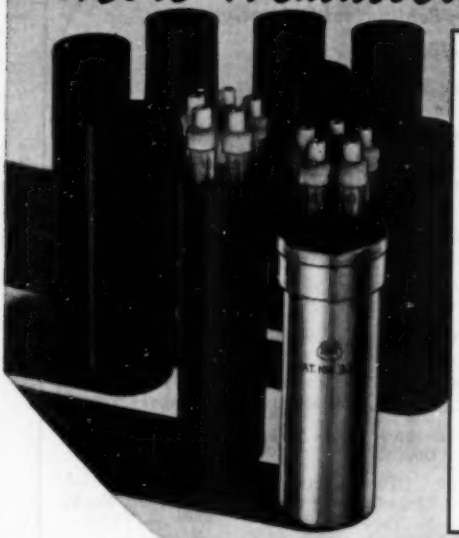

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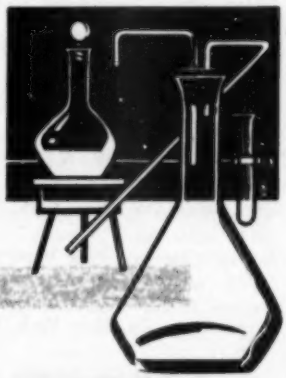

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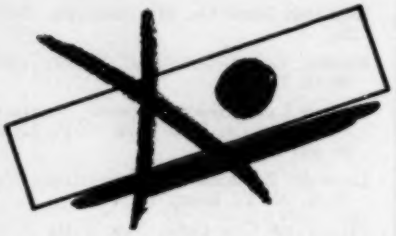

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